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THE LAKE CAPTAIN—ORGANIZED LABOR.

Of course it is no longer news that the Pittsburg Steamship Co., the lake vessel branch of the Steel Corporation, has settled its controversy with the Masters & Pilots' association and that the vessels which were laid up have returned to active service; but there is sufficient left to chew upon. The abrupt settlement of the difficulty merely illustrates the surprising changes which, during recent times, have marked the business of lake commerce. Two years ago the Steel Corporation was formed and swept into its capacious fold 112 of the best vessels on the great lakes, constituting by all odds the most splendid fleet in existence flying the American flag. A year before the Steel Corporation was formed the most venturesome mind, the closest student of lake traffic, could not have predicted such a condition and could not by any process of reasoning have supported it. But the Steel Corporation was planned and executed with remarkable rapidity and a number of independent and competing fleets became a unit under one management. The small owner began to wonder what was in store for him. The operation of a fleet so large as this involved certain radical changes in system. Instead of being owned by individuals whose temperament and habits, whose strength and frailties, were intimately known by those who sailed the vessels they became owned by an indeterminate number of persons, scattered from Maine to Mexico, and known under the general classification of stockholders in the United States Steel Corporation. In other words the evolution was from the personal to the impersonal; and impersonal things must be managed in an impersonal manner. The human element is lacking. It was no longer Capt. John or Capt. Ed, but The Company. Such a widely scattered and far-flung thing as the Steel Corporation must have system in all its departments. Everything must conform to an accepted order and blanks innumerable must be filled out. Probably at times these blanks border on red tape; probably they order things done which any reasonable man may be expected to anticipate and to do for himself; but system is impersonal and falls like the dew of heaven alike upon the just and unjust. There is no doubt whatever but that the Steel Corporation trod on the toes of a great many captains when it extended its system of operation to the vessels. While there has been a tendency of late on the part of a number of owners to limit the authority of the master, the Steel Corporation took a long step in that direction and left him practically shorn. And it must be admitted that members of other unions on board ship did not temper the wind to the shorn lamb. In past years the captain employed the entire crew from engineer to deck hand. The Steel Corporation deprived him of the privilege of employing either the engineers, the mates or the stewards. The office rule increased with curtailment of power aboard the ship and each new general order was a source of additional dissatisfaction.

But to return to the thought of the swiftness with which things are done on the lakes. The men partake of the alacrity of the automatic machinery with which they work. A year ago the masters were not a well-organized body, if indeed they might at that time have been said to have been organized at all. The owner had some views on the subject of a union of captains and a word of disapproval from him had been sufficient to make the most resolute of them abandon all thought of a union in the accepted meaning of the word. The owner desired his captain to be his representative on board ship, a position which was absolutely incompatible with membership in a union, for no man can serve two masters. The Ship Masters' association was not in the reckoning, for that was purely a social and benevolent body. Forces, however, were at work to bring the masters into a compact union. These forces were the mates, who are, of course, licensed pilots, as much so as the masters, and while a year ago they worked in rather sterile soil the latter-day grievances of the masters, especially those on Steel Corporation ships, had fertilized it somewhat. The master felt keenly the force of the argument that his authority is not what it once was and undoubtedly the hope that he might be restored to his former glory was a powerful slogan. Like the clans of the MacGregors they were called together by it. In an incredibly short space of time there was gathered into the fold of the Masters & Pilots' association every deck officer on the lakes save one; at least such must be the conclusion from the contention regarding one man in the recent trouble. This one was Capt. Frank Rae, master of the steamer Clemson, owned by the Provident Steamship Co., which is managed by Mr. A. B. Wolvin.

Capt. Rae was not sailing last season and took no part in any of the affairs of the masters during the past winter. He is a splendid type of man, highly capable as a vessel master, and his ability was known to Mr. Wolvin, in whose employ he had been for years. He decided before the opening of navigation this spring to return to the lakes and made application to Mr. Wolvin for a place. Mr. Wolvin undoubtedly would have liked to employ him on a Steel Corporation vessel but there is a system of promotion in vogue on Steel Corporation vessels and Capt. Rae could not have been given a ship without displacing someone, who, in the natural order of promotion, had a prior lien. There was no question of union involved because the Steel Corporation, as Mr. Wolvin claimed, and still claims, had no agreement with the Masters and Pilots' association as to whom it should employ. The agreement related to wages and to a promise to treat with the masters and pilots next winter. The Clemson was about to go into commission. She was not of the Steel Corporation fleet but was managed by Mr. Wolvin and he gave her to Capt. Rae to sail. Mr. Wolvin says he had no thought of the union when giving a place to Capt. Rae. It was optional with Capt. Rae whether he joined the union or not, though Rae knew that Wolvin believed, like other owners, that the master should be the owner's representative on board. All this detail from Mr. Wolvin's standpoint is given for the reason that he denies the charge that Capt. Rae was employed for the purpose of opposing the organization of masters and pilots or that he had made any agreement with the organization as to whom he should employ.

Capt. Rae did not join the union. His father, who is also not of the union, was with him as mate. He could get no mates from the unionized ranks. As the season advanced and the strength of the pilots' organization was demonstrated the Clemson case was taken up in meetings. The masters, and especially the older men in the big vessels, are said to have counseled postponement of action until the winter conference that had been agreed upon. Even Capt. Charles Maytham, who was generally held to have precipitated the present fight, is now credited with having advised caution until the winter conference. But the mates insisted upon summary action, and as they are overwhelmingly in the majority, they, of course, carried their point. It was expected that the winter conference would deal mainly with the restoration of the captain to his former position of authority aboard ship, but in the Clemson case a new cause for immediate action was put forth. Capt. Rae was ordered to discharge his father and employ, as mate, a member of the Masters & Pilots' association. He declined to do so. The mates of Steel Corporation ships therefore began leaving as soon as the vessels reached Lake Erie docks. It will, of course, be a very great mystery to the layman as to why the mates of Steel Corporation vessels should quit because the master of a vessel of an entirely different fleet declined to discharge a non-union mate; and it must therefore be borne in mind by the aforesaid layman that Mr. Wolvin is also the general manager of the Steel Corporation's fleet of vessels. As to the morality of this action there was evidently some question within the organization, as evidenced by the disposition of some members to hold the matter in abeyance until the winter conference.

Although Mr. Wolvin gave out no information as to his plans at any time during the trouble, and did not treat directly with the men, it is quite certain that his first intention, seeing that the fight was made on his ships and not on the lake fleet as a whole, was to make terms with the pilots for the balance of the season and leave the general question of differences to be fought out for another season. But it is a fact that representatives of other large vessel interests pleaded with him for the struggle at this time, placing stress upon the unsatisfactory outlook in lake freights for the balance of the season and referring to the condition of ore supplies, which, it may be said truthfully, are probably sufficient for a very long time to come, especially in the case of the Steel Corporation. It was this assurance of support from the vessel owners generally that caused vessels of the Corporation to be sent to the dock for winter moorings when the mates left them. It was evidently Mr. Wolvin's intention to continue tying up his fleet if he had the support he expected from all the other vessel owners, but if the truth must be told there were those among the so-called independent vessel owners, who, while heaping encomiums upon Mr. Wolvin's head and pledging eternal devotion to his cause, were also smelling the burning incense of dollar ore in event of the Steel Corporation fleet being removed from the lake trade. The loyalty of these interests was tested when the plans of the Steel Corporation representatives were changed and some of the tow barges again put into operation. There was excellent ground for believing that this could be done. The barges could be manned irrespective of the Masters & Pilots' association and towed behind steamers other than those of the Steel Corporation. An independent owner in towing a barge was actually doing no more than taking a contract to carry Steel Corporation ore—and a great many of them are now carrying Steel Corporation ore under season contracts. Mr. Wolvin accordingly asked the independent owners to tow his barges and a few of them slipped out of port before the Masters & Pilots' association was aware of the new turn affairs had taken. For a day or two the union made no move. Then its business agent made a request upon the independent owners not to tow the barges. A few members of the union predicted that there would be trouble if they persisted in towing the barges. Some of the owners began

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to worry a bit and a meeting was held with Mr. Wolvin. There was some plain talking at the meeting. Mr. Wolvin told the owners that the fight was just as much theirs as it was his, which was really in effect what the owners had told him a day or two previous. The precarious condition of the freight market was pointed out and it was plainly hinted that the freight outlook, aside from contract business, did not amount to much more than a mouthful for the Steel Corporation ships provided they were forced back into service through surrender to the Masters & Pilots' association. Many of the owners thereupon pledged themselves to united action even to the extent of laying up their boats if necessary. Meanwhile they telegraphed for their masters to come to Cleveland and urged them to endeavor to call off the fight. They really had hope that this tactic would succeed, for it was known that a fair proportion of the masters, even including those on the Steel Corporation ships, were not in favor of a fight now. Many of the masters urged the calling off of the fight but, as stated, the mates were in the majority and they ruled otherwise. The edict went out that the independent owner should not tow the barges. A break in the ranks of the independent owners now began to be discerned. They became a divided lot. Many of them were not earnestly in the fight from the beginning. Some were still in favor of continuing the struggle, even if it sent their own steamers to the dock; others demurred, spoke of contract obligations, of the fact that their directors had met and vetoed their plans, and a hundred and one other things which had turned the natural current of their desire awry. Mr. Wolvin and his associates (he was all the time in conference with leading officials of the Steel Corporation) lost no time in coming to a decision under the new order of things. He had said in the beginning that he could not win alone. He settled with the Masters & Pilots' association, giving them what they asked. If there should be a crumb of comfort for the owner in the agreement he is welcome to discover it. The agreement reads:

"Capt. Frank Rae to be relieved from the command of the steamer Clemson at once and she be manned with members of the Masters & Pilots' association. That in the event Capt. Frank Rae will file an application for membership in the Masters & Pilots' association within fifteen days from date, the board of directors and the committee having in charge the negotiating of a settlement of this controversy, pledge themselves to use their best efforts to have it favorably acted upon prior to the meeting of the Masters & Pilots' and Lake Carriers' associations, to be held during the winter.

"All the members of the Masters & Pilots' association to return at once to the same positions they occupied on the vessels on which they were employed immediately prior to this controversy with no stoppage of pay during the time the vessels may have been stopped.

"All vessels to be put into commission immediately and to make at least one round trip.

"The discussion of all other grievances that may exist to date be waived until the meeting arranged between the Masters & Pilots' and Lake Carriers' associations to take place this winter."

In this agreement the men get really more than they are entitled to, for they get pay for time during which they were voluntarily absent from duty. As soon as the settlement was determined upon Capt. W. W. Smith, marine superintendent of the Pittsburg Steamship Co., lost no time in getting the vessels back into commission. They are now actively engaged in all the trades that are open—coal, grain and ore—in competition more than ever with the lake fleet as a whole, and they are certainly not mending the market from the vessel owner's standpoint.

But above and beyond this question of the immediate dollar concerned in the present fall trade there is the grave question of the management of vessel property next year. The Masters & Pilots' association on the great lakes from absolutely nothing a year ago is now spoken of as the most powerful body of organized labor in the world. Why? Because of the special training of its members and the majesty of the law. Were a strike to occur in the Atlantic trade it would be a comparatively simple matter to bring men from the Pacific to fill it. Engineers from the seaboard could run the engines of lake vessels but no masters or pilots can be brought from anywhere on earth to take the places of the deck officers of the lakes. No man from the ocean can navigate the lakes because he doesn't know how. Navigation on the lakes is essentially geographical and physical. It is governed by personal geographical knowledge and guided by buoys, beacons, lights and ranges and other artificial aids. No man can sail a vessel on the lakes without a license and no man can get a license until he has sailed for three years. The Masters & Pilots' association is now said to embrace every licensed man on the lakes save one—and this one is promised the best endeavors of a committee, but it is to be noted that he isn't promised admission. No more eloquent testimony than this is needed to convince anyone of the dominant power that rests with the Masters & Pilots' association on the great lakes.

What, therefore, will the vessel owner probably see within a very short space of time—in all likelihood next spring. He may see two unions fighting over the management of his property while he himself sits helplessly by, conscious of the fact that his advice will not be sought nor his interference tolerated. A freighter costs roundly a quarter of a million dollars and the man who has this money invested in her may have absolutely nothing to say regarding her operation. If the unions decide to tie her to the dock until they settle the differences between themselves he will be powerless to prevent it. There is no doubt whatever but that the captain desires his old-time authority on the ship and there is no doubt also that it is upon this string that the mates have played. The captain will want to hire the engineers. Now the Marine Engineers' Beneficial association is a well organized body. It has gone through famine to perfect its organization and it has become pretty well entrenched on the lakes. It does not enjoy a position of practical legal monopoly such as the Masters & Pilots' association now enjoys, but nevertheless it pretty thoroughly embraces the marine engineers of the country. The tendency of the vessel owner to employ the engineer from the home office has met the cordial approval of engineers in general. It has put the engineer in his own opinion upon an equal footing with the master, and, beyond all dispute, it is a privilege which he dearly loves. He will undoubtedly fight to retain it. He has said so already. And already has the Masters & Pilots' association sent out the word that no contracts are to be made for 1904 with the Pittsburg Steamship Co. until this particular point is threshed out. Here then are two unions ready to fly at each other's throats while the vessel owner pays the bill for damages. The Seamen's union, too is known to have little love for a certain other labor organization and is awaiting an opportunity to take a hand in the melee. No doubt Mr. Wolvin's friendship for some of his brother vessel owners has not increased within the past week but his experience with this strike very probably prompts him to feel that there is another day coming for all concerned.

IS THE END OF PROSPERITY AT HAND?

An enormous reduction in the quoted value of securities has occurred during the past eight months. The decline has been steady all along, but during the past few weeks the downward course has been precipitate. In some respects it has been a wholesome and natural way of correcting the evils of inflation and of bringing prices down to actual values, but unfortunately while it is in no sense a panic still the effect produced is similar to that of a panic in that money is not likely to be forthcoming to project new ventures or to prop up those that need additional capital to secure them. It is already quite clear that the recovery of confidence will be slow. Has the country got to the top of its wave of prosperity? Has the producing capacity of the country finally equaled its consuming capacity? If it has no new mills and factories will be needed and those which have recently been established will have difficulty in retaining a hold. A new industry cannot easily be established upon a falling market. The past three years have marked an increase in volume of trade and in prices obtained for commodities. Probably prices have been forced as high as they can safely go. Indeed, they now rest upon a higher level than can possibly be maintained if the theory is correct that the end of the demand has come. General business during the past few years has expanded wonderfully and machinery, tools, locomotives and cars have been turned out lavishly to meet it. Factories have multiplied to meet the demand for manufactured products. If the crest is reached it is clear that the present producing capacity of the country is sufficient. If there is to be no more growth there is no need of new factories. True, they may be established, but there is no need of them. They can thrive only by lessening the business of some other plant, but they can add nothing to the total of the country's wealth. From the continued sagging of the stock market it would appear as though the period of inflation were over, or that it is the sum of the opinion of investors that it is over. If the business of the country is to settle down to a normal basis it is well to look forward to a suspension of dividends upon common stocks, especially those which were never intended to represent anything other than water. A return to the old-fashioned system of financing a company would be welcome where the authorized capital at least would be on speaking terms with the actual value of the plant; for it has not been an uncommon thing during the past two years for a company with an authorized capital of $10,000,000 to permit all of its tangible assets to be sold to satisfy a claim for $800. A sensible return to normal conditions is not to be feared. Substantial companies will doubtless continue to earn a reasonable dividend upon the money actually invested. The unfortunate thing about this drastic shrinkage in prices is that the loss does not fall where it properly belongs. The combination maker manufactures the securities and the public digests them.

J. P. Morgan & Co., fiscal agents of the International Mercantile Marine Co., will on Oct. 1 pay the semi-annual interest on the $50,000,000 of 4½ per cent. bonds of the steamship combination. The payment, aggregating $1,125,000, is the second paid by the company since its organization a year ago. The bonds are held by the underwriting syndicate and the October interest payment will make $2,250,000 paid to the syndicate.

The Pittsburg Coal Co., which controls great areas of soft coal property, with railway equipment docks and coal handling equipment in the lake region, is showing a marked increase in earnings of late. Net earnings for August, this year, $628,151; for August, 1902, $401,937; net increase $226,214. Net earnings for eight months ended Aug. 31, 1903, $4,524,554; for eight months ended Aug. 31, 1902, $2,433,970; net increase $2,090,584.

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SHIP BUILDING VERY DULL.

But a Fairly Prosperous Outlook in the Steel Industry if not Interfered with by American Competition—Such is the Report from the Other Side—Glasgow Letter.

Glasgow, Sept. 21.—Referring to what has been said in these letters about the condition and prospects of ship building and shipping, attention continues to be more and more keenly bent on the iron trade. At the approach of the last quarter of the year this presents a picture brighter than one could contemplate at the end of the second quarter. In the early summer everything pointed to a gloomy industrial winter. It was believed that the American demand for British iron and steel had come to an end, and that it would be followed by the collapse of our markets. As it happens, the American demand has actually ceased but our pig iron market has gone up instead of down. For some twelve months or more the prosperity of our iron markets seemed to be dependent on the apparently insatiable consuming capacity of America. During the eight months ending August the pig iron shipments of the last three years to the United States were: 1901, 27,957 tons; 1902, 211,317 tons; 1903, 297,650 tons. But in the month of August alone the shipments were: 1901, 4,563 tons; 1902, 69,972 tons; 1903, 17,354 tons. Thus while up to now the shipments to the United States have this year exceeded those of last, the movement has practically ceased. Yet just after the stoppage of the exceptional demand which had so long upheld our market, smelters advanced their prices one shilling per ton because of the pressure upon them from other quarters. This is the significant feature of the situation. We are no longer dependent on America to take away our surplus, and the expected rush of the American surplus to our shores is not yet within sight. It will come some day, no doubt. As to the consumption of crude iron in this country, the expected has not happened. The ship building industry has been steadily declining but with its decline extreme depression in the steel industry has not occurred. A new demand for steel material has been growing, although that for ship building material has been decreasing. This is the encouraging feature for the steel trade, because a revival in ship building must occur sooner or later. What has happened in the engineering industry has also happened in the steel industry. There is a great decrease of activity in the building of marine engines, but this has been compensated by a growing activity in electrical engineering and in motor-car production, so that overhead the industry is in a good condition. There is a great decrease in the demand for steel ship building material, but this has been compensated by an increase in the demand for structural steel, and for steel material for new applications. And thus our industrial condition is better than a few months ago it was expected to be.

The prospects in the ship yards and in the numerous small trades that depend on them are, no doubt, anxious. The excess of launches over new orders month by month during most of this year points to an early array of bare poles on the river banks, and much of the prosperity of the whole Clyde district depends on the activity of the ship building industry. The worst of it is that hope for a revival of the demand for new ships is dimmed by the highly unprofitable character of the shipping industry as a whole just now, and by the fear that further additions to the world's fleet of ocean tramps will only still further depress the freight markets. The placing of a few more admiralty contracts would, no doubt, help our ship building without hurting shipping. The foreign orders for new ships have, however, declined proportionally even more than the orders of British owners. In the eight months ending August our exports of new ships were to the value of only £3,155,103, as compared with £4,273,875 in the corresponding portion of 1902 and with £6,126,202 in the corresponding portion of 1901, but these figures do not include the value of second-hand ships sold to foreigners, which have been numerous. While ship owners have no cause to desire immediate revival in ship building, they cannot foresee any reasonable prospect of a further reduction in the costs of building new ships.

The position in America is, of course, of enormous importance to us. There the productive capacity of pig iron is enormous, and this will again play an important part in our pig iron trade. At present the price of American southern pig iron is still relatively about $3 a ton higher than the class of iron against which it could compete in this country, and as the demand on your side is reported fair, it is thought that not for a few months yet will there be any imports from your quarter, although as the cotton season advances some iron may come over at ballast rates. Canada may be sending iron here before the United States, but yet there is no word of anything coming from the Dominion, although recently there were rumors that shipments would take place before the season finished. Some, indeed, is being sent from here to Canada. Germany is a more uncertain quantity to deal with than the United States and Canada. She has benefited extensively from the American demand, and there has been a certain revival of trade there which has helped to give things a somewhat brighter appearance. But it is uncertain if the improvement will be maintained.

TURBINE STILL ATTRACTING GENERAL ATTENTION.

The further improvements reported in connection with the turbine are attracting much attention amongst steel makers. Under the latest invention in this connection it is claimed that all the objections which ship owners have urged against the adoption of the turbine have been met, and if this should turn out to be correct, important developments in the transatlantic service may be looked for. In fact, some assert that the turbine will ultimately bring about quite a revolution in the marine engineering trade. The importance of this to the steel maker is great.

In the matter of turbines it may be noted that the Velox has just been delivered to the admiralty, and with the view of thoroughly testing her system of steam turbine propelling machinery special trials will now be undertaken by a special staff from the admiralty. To ensure the fullest and most precise data water tanks and measuring appliances will be fitted so as to determine the amount of water evaporated and the quantity of steam used for a given speed. With the data possessed at the admiralty, as a result of tests of other torpedo boat destroyers, it will be possible to make a thorough comparison of steam efficiency, and the results will be valuable. The unfortunate Viper was fitted with all the appliances necessary for similar tests, but the trials were postponed until after the manœuvers during which the vessel was lost on the Channel islands. As a result of the experience gained, the Velox has, in addition to the turbines for ahead and astern driving, reciprocating engines for working at low cruising speed, the belief at the admiralty being that at low power the turbine is not so economical as at high power.

STRENGTH OF TORPEDO-BOAT DESTROYERS.

The report of the admiralty committee on the strength of torpedo-boat destroyers has now been drawn up and awaits publication. The appendices include an elaborate record of the experiments carried out on the torpedo boat destroyer Wolf, and a comparison as to how these approximated to the theoretical calculations of strains of a ship under certain conditions of sagging and hogging in a seaway. This question was thoroughly investigated by the committee, which is a scientific one, comprised of Admiral Fitzgerald as chairman, Dr. Inglis, Prof. Biles, and Messrs. Archibald Denny and Henry E. Deadman, four of them experienced naval architects. The report is, I understand, not so unfavorable to those responsible for the design of the turbine boat Cobra as was the court-martial over her loss, and the work of the committee will tend to restore confidence in torpedo-boat destroyers generally.

The trials have been completed of the second-class cruiser Challenger, which was laid down in December, 1900, at the Chatham dock yard. Her length is 355 ft. and her displacement 5,880 tons. The interesting feature of the trials is that she is the largest power vessel yet tried in the British navy with the Babcock & Wilcox boiler. The trials were in every way a success. On the 30-hours' trial at the power corresponding to continuous sea speed the power indicated was 8,972 H. P., and on the full-power trials of 8 hours duration, the mean was 12,781 H. P., while the contract was for 12,500 H. P. The speed was practically 21 knots.

NATIONAL MOTOR BOAT EXPOSITION.

The first exposition designed to recognize motor boats as a maritime quantity will be held in New York next February. It will be known as the National Motor Boat Exposition and will be held under the direction of Mr. Robert Taylor in the Herald Square exhibition hall at the junction of Broadway and Thirty-fourth street, from Feb. 8 to 20. The popularity of the motor boat, which may mean anything from a dory with a gasoline engine to a high-speed yacht, is attested by the fact that Mr. Taylor has a list of about 1,300 concerns which manufacture motor boats. The utility of the motor boat is unquestioned. Its economy commends it to the man of moderate means and its adaptability to anyone who has anything to do with the water. It is a favorite method of locomotion on rivers and sheltered waters.

Abroad races of power boats have attracted a vast amount of attention and interest. The first international motor boat race for a cup, a handsome trophy put up by Mr. Alfred Harmsworth, took place July 11 in Queenstown harbor. The conditions limited the length of competing boats to 40 ft. The first motor boat race in France was at Poissy-Melum, 30 miles north of Paris. The French call them automobile boats. A fleet of hundreds of boats darted about the scene and the novelty, life and quick action of the race and scene satisfied the most volatile of Parisian spectators.

In New York the first to recognize motor boats as a separate faction in sport were some gentlemen who organized the American Power Boat association. Its secretary is Mr. John H. McIntosh, No 32 Broadway. The first open race of the association was held June 20 under the auspices of the Columbia yacht club on the Hudson river. Since then several power boat races have been held, one of the most interesting being a special match between perhaps the largest recognized type power boats, the Standard, owned by E. A. Riotte of New York, and the Adios, owned by J. H. Leighton of Syracuse. Both are high-speed gasoline launches. The Standard suffered a temporary breakdown, but the Adios, racing through a heavy sea, cut through the water at a 24-knot gait.

The preliminary prospectus sent out by the management of the motor boat show brought quick responses expressing the interest of makers of motor boats, motors and auxiliaries, and the prospect is bright not only for a first show of motor boats but for its annual repetition. Among the oddities which have been suggested as an exhibit is a motor canoe, invented and built in Newport on the lines of the famous flying proa. The Newport canoe's main hull is about 2½ ft. beam and she has made 13.43 miles an hour.

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PHILADELPHIA SHIPPING NEWS.

Philadelphia, Sept. 30.—The keel of the Washington, the first armored cruiser to be built in New Jersey, was laid last week at the New York Ship Building Co.'s yards, Camden. The keel was laid without ceremony of any kind and was witnessed only by officials of the ship building company and representatives of the government. The time limit of construction by the government is forty-two months and the contract price is $4,035,000. The Washington's general features and dimensions are: Length on load water line, 502 ft.; breadth, extreme at load water line, 72 ft. 10⅛ in.; displacement on trial, not more than 14,500 tons; mean draught to bottom of keel on trial displacement, 25 ft.; maximum displacement, full load condition, with coal bunkers full, full supply of stores, ammunition on board and water in boilers, 15,950 tons; mean draught at maximum load, 27 ft.; coal carried on trial, 900 tons; total coal bunker capacity, 2,000 tons. The Washington will have a speed of 22 knots. The ammunition and shell rooms are so arranged that one-half the total supply of ammunition will be carried at each end of the ship. The engines will be the vertical, twin-screw, four-cylinder, triple-expansion type of a combined indicated horse power of 23,000. The steam pressure will be 250 lbs. and the stroke 4 ft. The engines will be located in two separate watertight compartments. The cruiser's hull is protected by a 5-in. belt of armor extending from 5 ft. below the normal water line to the upper deck in the wake of 6-in. guns; the armor extending completely to the bow and stern near the water line to form a water line belt. Extending from the gun deck to the protective deck are bulkheads of 5-in. armor. Between the gun and berth decks are similar bulkheads. Above the gun deck 2-in. nickel steel will be fitted. The 10-in. turrets are protected by 9-in. of armor. The armament will be: Four 10-in. breech loading rifles and sixteen 6-in. breech loading rifles. The secondary battery will have twenty-three 3-in. rapid-fire guns, twelve 3-pounder automatic guns, two 1-pounder rapid-fire guns and a number of similar guns of smaller caliber. Matters at the company's yards are in excellent shape for rapid prosecution of the work of the cruiser's construction. The large steamer Manchuria is almost ready for launching and it is quite likely the steel keel of the new battleship Kansas will be laid on the stocks now occupied by that vessel. The plans for the Kansas are keeping the force of draughtsmen busy.

The steel tug John F. Lewis was launched Saturday at the Dialogue ship yards, Camden, Mrs. John F. Lewis being sponsor. The tug was built for Hughes Bros. of Philadelphia, and will be used in river and ocean towing. Capt. R. E. Wilson will be her master. The Lewis has a steel hull and steel deck house, is 100 ft. long, 21 ft. beam and 12½ ft. depth of hold. She carries 85 tons of coal and will have every modern improvement necessary for coast towing. It is expected at the Dialogue yards to commence work soon on an extra large car float and another large tug.

The tug Titan, towing the Italian bark Erasmo, steamed down the Delaware river last Friday bound for Genoa, Italy, where the Erasmo is being taken for repairs that her owners say can be made cheaper in that country than this. This is one of the longest towing contracts ever made by a tug out of this port. The tow is over 4,000 miles and the outcome of the trip will be watched with interest. Capt. Baker of the Titan said that if all went well he would make Genoa within a month. The vessels will touch at St. Michaels, Fayal and Gibraltar.

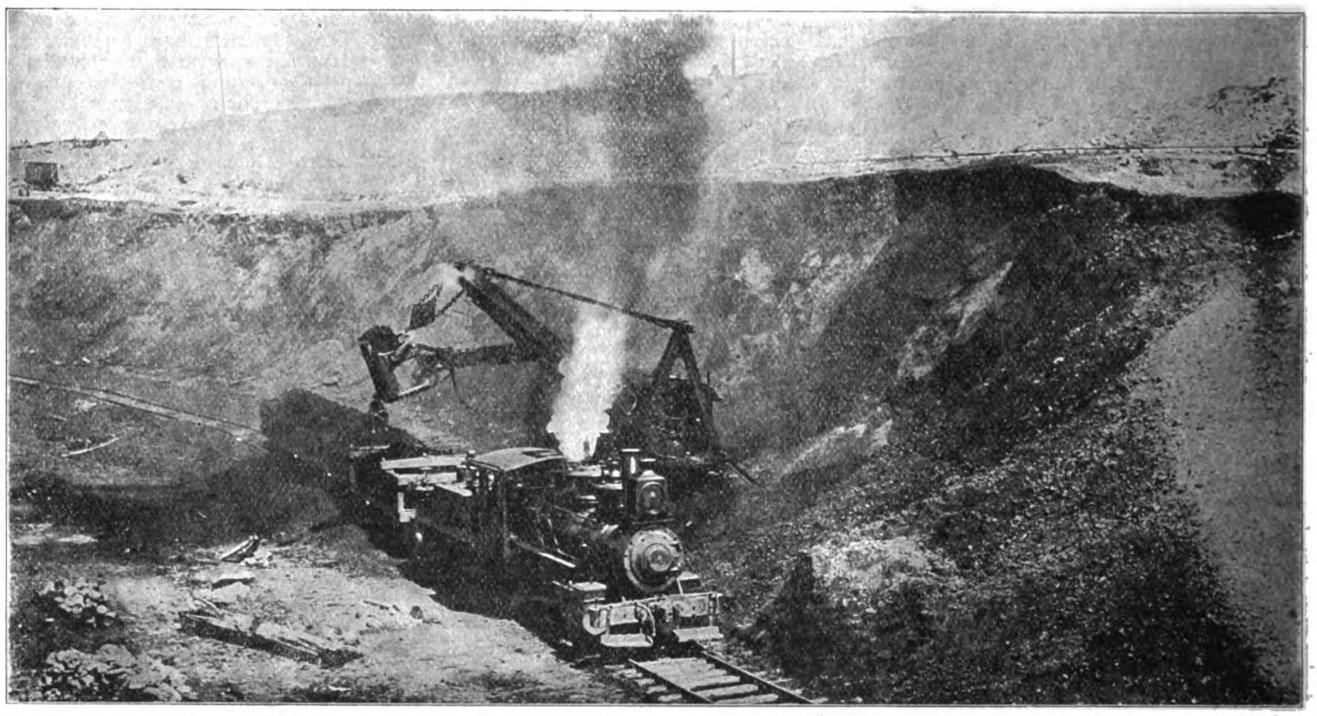
The training ship Hartford has reached League island and will be dry docked and repaired. The cruiser Minneapolis will go into commission Oct. 5, all repairs on her having been finished. She will be assigned to service as the flagship of Rear Admiral Wise, commanding the Atlantic training squadron. The battleship Maine left League island last Friday and proceeds to southern waters for trial tests of her new boilers, propellers, guns, etc.

At a meeting of the board of directors of the Maritime Exchange, Monday, resolutions were adopted endorsing the work of securing a 35-ft. channel in the Delaware from this city to the sea. The following resolutions on American shipping were also adopted:

"Whereas, The present low estate of the United States merchant marine engaged in transoceanic commerce is viewed with alarm by this exchange; and

"Whereas, The experience of years has demonstrated the impossibility of successfully operating ships under the American flag in foreign trades under present conditions; therefore, be it

"Resolved, That the Philadelphia Maritime Exchange heartily indorses the object of the New York Maritime Exchange in its efforts to arouse the country to the necessity of urging upon congress the importance of enacting some measure that will enable Americans to build and operate American ships in competition with the world."



The Greatest of the Lake Superior Iron Mines, the Fayal on the Mesabi Range, owned by the United States Steel Corporation.

The exchange decided to earnestly co-operate with all other organizations in support of the resolution. The following new members of the exchange were elected: Matteson & Drake, naval architects and consulting engineers, 706-08, Bourse; Lit Bros., department store, 8th and Market; Leo J. Tierney, coal, 367 Bourse; Beech Creek Coal & Coke Co., miners and shippers of coal, 700 Reading terminal; the North American, newspaper, Broad and Sansom sts.; Rochester & Pittsburg Coal & Iron Co., 727 Reading terminal, bituminous coal miners and shippers; the Provident Life & Trust Co. of Philadelphia, banking, 4th and Chestnut sts.; Pennsylvania Co. for Insurance on Lives and Granting Annuities, banking trusts, etc., 517 Chestnut; Baker Transportation Co., transportation, 421 Chestnut; C. Halyburton, ship chandler and engineers' supplies, 217 Walnut; F. W. Munn, towing and transportation, 311½ Walnut; S. J. Goucher, ship broker and lighterage, 226 Dock; Bouger & Bishop, groceries and vessel supplies, Richmond st. and Columbus ave.; Philadelphia-Keystone Plaster Co., plaster, Chester, Pa.; Tidewater Steel Co., steel, Thurlow, Pa.; Seaboard Steel Casting Co., steel foundry, Chester Pa.; Tice Towing & Transportation Line, towing and transportation, 17 Battery place, New York city.

Philadelphia Section No. 4 of the Navy League of the United States has been organized in this city with the following officers: Alexander Van Rensselaer, chairman; Dr. George C. Stout, treasurer, and Charles O. Bond, secretary. The purpose of the league is to awaken co-operation in all matters tending to improve and develop naval forces and equipment. Ex-Secretary of the Navy Tracy is national president of the association. The local league proposes to interest Philadelphians in the objects of the association and predicts a successful outcome.

The George V. Cresson Co. of this city, manufacturers of power transmission machinery, have received a large order for machinery from Mexican parties.

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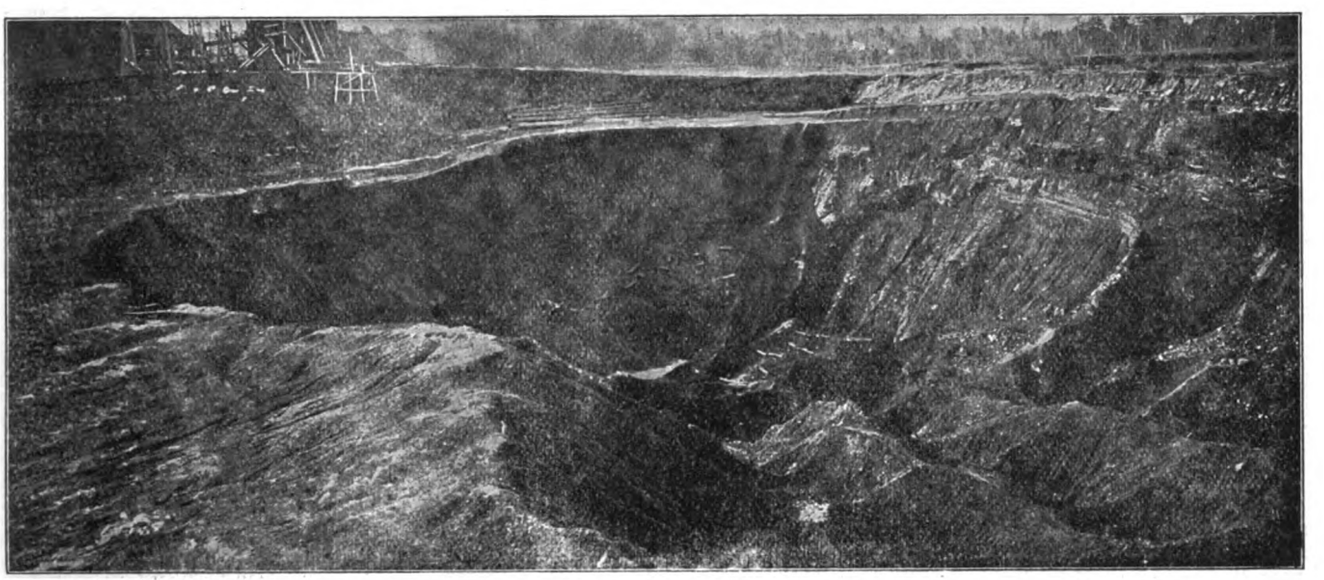
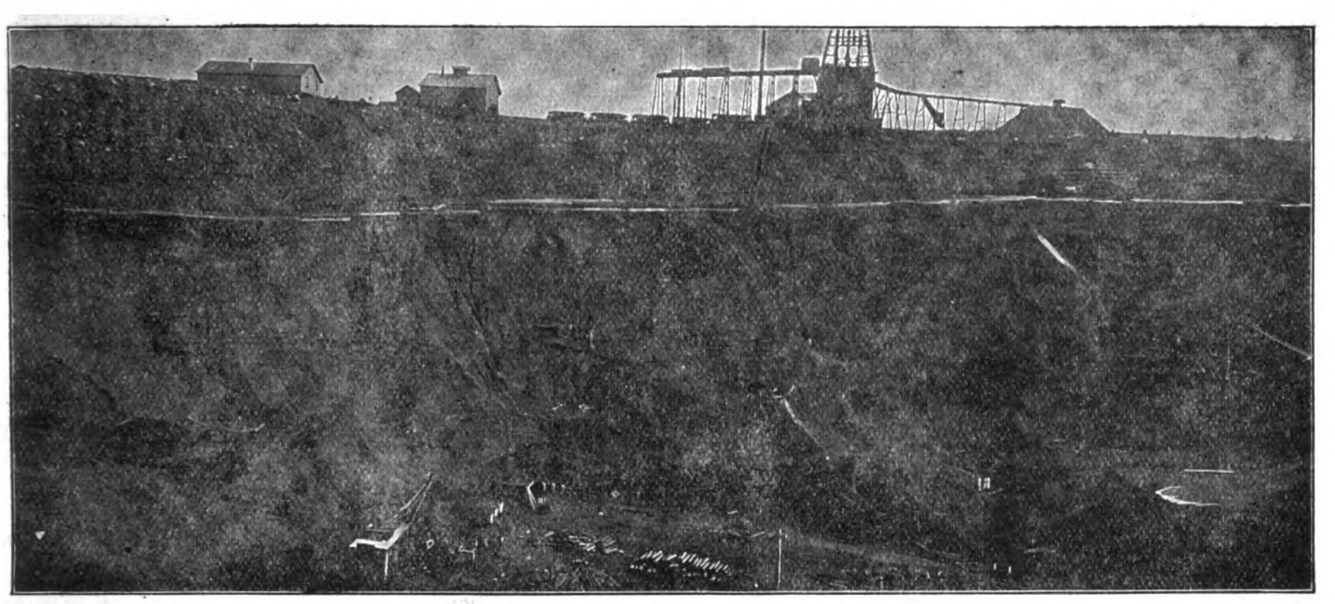
COURSE OF STEEL COMMON.

The following extraordinary communication was published in the New York Commercial on Saturday last:

"If Mr. Andrew Carnegie thinks it is a disgrace to die rich, why doesn't he, for the sake of thousands of investors who have purchased Steel common shares only because he was the head and front of the Steel Corporation, take advantage of this opportunity to relieve himself of some of his immense wealth by guaranteeing the 4 per cent. dividend on the common stock for five years? He knows that the common shares of the United States Steel Corporation were purchased in good faith by thousands of people who depended not so much on the dividends as they did on their belief in the maintenance of values; so that, if they were compelled to hypothecate them later on in order to take care of some unexpected demand, they would be sure that they could at least recover their money; contrary to this, they find themselves unable to turn their holdings into more than one-third of the original cost. Mr. Carnegie (philanthropist?) knows that the depression of the Steel stocks has caused much pain and suffering among the masses of small investors, and in some cases the loss of life through despair; and he should therefore take a chance on reducing his wealth by several millions. If he were compelled to pay the 4 per cent. on the common for five years, it would amount to only $100,000,000—and what does he care for that?"

Surely if Mr. Carnegie desires an avenue for the distribution of his wealth here is one which would exhaust his resources were they ten times as plentiful. But the writer of the communication does injustice to Mr. Carnegie. Mr. Carnegie is not the head and front of the Steel Corporation. This organization was really formed to retire Mr. Carnegie to private life; in fact, to get him out of the steel business in which he had become a grave disturbing element, and it accomplished its purpose very effectually. He has a mortgage on the plants of the Steel Corporation and his interest is solely that of a bondholder. If thousands of investors purchased Steel common because Mr. Carnegie was in the company they were deceived, but it is unlikely that anyone purchased shares for any such reason. They doubtless purchased them because on the face of it they looked like a good investment. Steel common has paid a better rate of interest than anything on the market at like figures. True if anyone were to liquidate his shares now he would probably lose money, because quotations have sadly declined, notwithstanding the fact that since this stock was created it has steadily paid dividends at 4 per cent. But Steel common would undoubtedly be rated higher today in the market than it is if it had never paid a dividend at all. During the past two years $40,000,000 have been distributed by the Steel Corporation in dividends upon the common stock. The inherent folly of this course is illustrated by the fact that coincident with the distribution of these dividends the corporation was endeavoring to get $50,000,000 in cash by floating an issue of bonds. It could have got the cash by merely retaining the dividends on common and would be in a far stronger financial position than it could possibly be by adding another mortgage of $50,000,000 upon its tangible assets. However the bonds were not floated and it is shrewdly surmised now that dividends upon common are to cease. The correspondent of the Commercial is wrong if he believes that those who invested in common shares did so largely on the assumption that values would be maintained. He probably means prices when he says values. A wise man would not buy common stock as an investment. If he bought it at all he would buy it for its speculative value. Common stock has no base. It is inflated with the prospect of big earnings one day and flattened out the next. In lean years it shrivels and in times of liquidation it disappears totally, for common stock does not usually represent a tangible asset. The Steel Corporation has done very well during the past two years but whether it has done wisely at all times is another question.





Two Views of Auburn Mine, Mesabi Range, owned by the United States Steel Corporation.

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THE FREIGHT SITUATION.

Of course the temporary withdrawal of the Steel Corporation's steamers from active service improved the condition of the freight market which, indeed, was none too good prior to the controversy with the Masters & Pilots' association; and the return of these vessels to service has not strengthened it any. Cargoes are not plentiful, and what there are the Steel Corporation vessels are actively competing for, the Corporation being entirely out of the market itself for wild tonnage. There is no change in carrying charges and there appears to be no disposition to make any. Most of the ore shippers are in need of very little wild tonnage and will only need special cargoes from now on. The vessels of the Pittsburg Steamship Co. have sought cargoes freely in the coal and grain trades and have taken about everything that has been offered. The total movement of grain from the head of the lakes is estimated at not more than 20,000,000 bu. and the ships of the Pittsburg Steamship Co. could carry this in a single trip. Operating expenses are to materially advance today (Thursday, Oct. 1) owing to the agreement with labor for an advanced wage during the fall months, and in the unsatisfactory condition of the market some of the smaller carriers will probably seek the dock. It is expected that the season will close early, some of the mines having already closed down and others curtailed their shipments.

NEW STEAMER FOR MR. FRANK SEITHER.

The Great Lakes Engineering Works, Detroit, Mich., will within two weeks lay the keel for a 5,000-ton steamer for Mr. Frank Seither of Cleveland, managing owner of the steamers G. J. Grammer and V. H. Ketchum. Contract for this steamer was closed a month ago though announcement was not made until within the present week. It is understood that the company has other contracts for steamers on hand though the details are lacking. The steamer for Mr. Seither will be 376 ft. over all, 356 ft. keel, 50 ft. beam and 28 ft. deep. The engines of the steamer V. H. Ketchum will be placed in the new steamer. She will have two Scotch boilers 12 ft. 10 in. in diameter and 12 ft. long, allowed a pressure of 175 lbs. The new steamer is to come out by the opening of navigation next year. The company has recently completed repairs upon Mr. W. H. Lawrence's steam yacht Santenella, including new cabin, new donkey boiler and new refrigerating plant. The boilers for the dredge for Mr. R. A. Perry of San Francisco, the hull of which is being built by the New York Ship Building Co., Camden, N. J., were shipped to Camden this week by the Great Lakes Engineering Works.

IMPORTANT STRIPPING CONTRACTS.

Duluth, Sept. 30.—Some very important jobs of earthwork have been let or are in contemplation on the Mesabi range. They emphasize the fact that pit mining, either by steam shovel or by milling, is becoming more and more the leading factor on that range, and that depths of overburden that a few years ago would have forbidden those methods are now not obstacles in their way. Thicknesses of overburden up to 75, 80 and even 90 ft. are not now considered impossible for an open pit mine, if there is sufficient ore beneath them to justify. "Sufficient ore" is now figured at one foot to the foot of overburden. Prices for stripping have varied of late somewhat, and have tended a trifle downward in the past two or three years, but are an average of not far from 40 to 42 cents a yard. As one yard of surface weighs very much less than one yard of ore, the removal of a thickness of a body of overburden equal in thickness to the ore to be mined beneath it is very far from ton for ton and is accounted good practice, while in some circumstances it is possible, perhaps, to take off more than foot for foot.

The Minnesota Iron Co. has just let to the Drake & Stratton Co. a contract for the extension of the Fayal open pit amounting to more than 2,000,000 cu. yds. of material. This will extend the big pit east of the shafts to the southwest, and takes in some of the old No. 1 dump that was placed there several years ago in the belief that no ore existed below it. Explorations conducted the past year have shown this a mistaken belief and the removal of the portion of the dump and the large permanent overburden beside it is to take place. This contract will call for the employment of about 500 men and four steam shovels, day and night, for at least three years and is to begin at once.

The Iroquois Mining Co., operator of the mine of that name in the east ½ of the northwest ¼ of section 10-58-18, has let contracts for the stripping of 700,000 yds. of overburden from the property. This runs up to 75 ft. in thickness, and is one of the deepest stripping contracts let on the range. The mine is to be milled and a shaft is now down in ore. Work on this job begins at once and ore is to be shipped the coming year. This property is managed by Rogers, Brown & Co., and is to furnish ore for the Iroquois furnaces at Chicago. There are so far as at present developed about 2,500,000 tons of a 57-per cent. non-Bessemer, coarse ore.

The Minnesota Iron Co., which is operating the Hull and Rust mines, south of the Mahoning, at Hibbing, is considering their stripping and operation as steam shovel properties. They have been extensively developed as underground mines and the ore is now won by the square set system. There is from 60 ft. to more of surface, and it is generally supposed that, if developed by stripping, they will show at least a fair comparison with the enormous bulk of Mahoning. Hull is ore for half a mile north and south, and it is supposed that the ore body runs through it and Rust pretty nearly to the village of Hibbing. For some months explorations have been in progress there to determine accurately the extent and character of the surface. Many million yards would ultimately be taken from these properties if it is decided that they shall be stripped.

CURTAILING MINING OPERATIONS.

Duluth, Sept. 30.—Mining operations in both the iron and copper districts of Lake Superior are suffering curtailment, and the indications are for some lack of employment during at least a part of the winter, though not so much as dispatches would seem to indicate. It seems strange that in the copper country, where the demand is well up to production and where prices are claimed to be perfectly satisfactory, that retrenchment is the rule, but that it is cannot be doubted. Machinery men and others doing business there have felt the change already, and mining managers state that they will cut off every unnecessary expense and reduce forces to a lower point than usual for the winter.

In the iron region these steps have been in progress for some time, and there are probably today 1,500 fewer men working in mines than ninety days ago. This number will probably be lessened by changes from mine to mine. Next week some few non-Bessemer mines will close for the winter, and the shipping season will doubtless end early with all producers. Not far from 20,000,000 gross tons of ore have been shipped down lakes this year, of which the United States Steel Corporation has sent down 12,000,0000 tons. Last year its shipments were a trifle more than 16,000,000 tons, and this was confessedly considerably in excess of its requirements for the twelve months. It is very evident, therefore, that the United States Steel Corporation now has at lower lake ports enough ore to maintain its operations at full swing for the coming winter and well into the spring of 1904. It is no wonder that the company did not care to continue shipments heavily in the face of a strike of the character of that of the lake Masters & Pilots' association.

GRAIN TRADE AT HEAD OF LAKES.

Duluth, Sept. 30.—Wheat is coming in at the head of the lakes quite slowly, but country advices to grain men at Duluth are that much grain is on the way and a large business is looked for. So severe was the weather of the past two weeks that it has taken some time to get over it, and threshing was delayed so that no new wheat was in condition for shipment until a few days ago. The strike of mill employes at Minneapolis, which has tied up practically all the flour mills of that city, will divert a great deal of grain this way that otherwise would have gone there, and will crowd it on the eastern market, the cash market at Minneapolis being temporarily too much out of shape to absorb much of anything. Contrary to most strikes this one came at a bad time of the year for the employers. There are large receipts of barley at the head of the lakes, and of oats considerable is coming in. Flax is delayed but will be moving forward heavily soon. Practically no grain is sold here for export, as against a very large amount a year ago, and sales for eastern delivery are small. The price of northwestern wheat seems to be out of line, but is dropping fast into parity with other grades and there should be business soon. Receipts, all grain, last week, 1,662,000 bu.; shipments, 1,143,000. There is more barley in store here than wheat.

The creditors of the Barry line of steamers believing that some liability existed as against the insurance policies on the steamers Badger State and the Empire State of the Barry line, petitioned for a receiver and the Detroit Trust Co. was Monday appointed as such to take possession of the policies. The trust company has made a demand for the policies, but until they are delivered it is not known what the amounts are. The steamers are both libeled by J. C. Gilchrist and others.

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CHICAGO GRAIN REPORT.

Chicago, Sept. 30.—Rather extensive offering of vessel capacity during the past week through renewal of Steel Corporation operations and usual grain traders, settled the market on a basis of 1⅜ cent wheat, 1¼ cent corn and 1⅛ cent oats for Buffalo, Port Huron and Georgian bay, and nominally 3 cent Kingston corn and 4½ cents @ 4¾ cents Montreal and Quebec. South Chicago elevators are pretty well covered with large capacity, but the cash situation is reported to be favorable and it is likely the sales of next few days will reinstate a favorable demand for nearby loading carriers.

Of the shipments for week just closed, as below, there was via rail 50,000 bu. wheat, 100,000 corn and 600,000 oats. For Buffalo and other United States ports 380,000 bu. wheat, 2,125,000 corn and 410,000 oats. And to Canadian points via lake about 115,000 bu. wheat, 580,000 corn and 100,000 oats. The lake and rail shipments together with stocks of grain follow:

	This week.	Last week.	last year.
Wheat	555,885	561,652	454,853
Corn	2,800,350	2,993,701	1,654,963
Oats	1,108,141	1,365,499	967,743
Rye	6,260	3,005	12,050
	4,470,636	4,923,857	3,089,609

	Since Jan. 1, 1903.	Same time last year.
Wheat	14,876,869	24,940,519
Corn	64,166,327	31,453,984
Oats	49,014,577	41,933,679
Rye	1,629,641	1,940,166
	129,687,414	100,268,348

Stocks of grain show some increase in private and public houses over those of last year:

	Week just closed	Last week.	Same week last year.
Wheat	7,116,000	6,884,000	8,511,000
Corn	6,918,000	5,729,000	2,438,000
Oats	3,119,000	3,110,000	3,936,000
Rye	483,000	476,000	250,000
	17,636,000	16,199,000	15,135,000

THE DALTON'S FIRST CARGO.

Duluth, Sept. 30.—The new steamship H. G. Dalton of the Great Lakes & St. Lawrence Transportation Co. took her first load Saturday and cleared from the head of the lake for Quebec. She has just been completed at the yard of the Superior Ship Building Co. The steamer's cargo was 20,000 bbls. of flour, part from local and part from Minneapolis mills. It is for export and will be transhipped at Quebec. Several of the new ships of this fleet have been at the head of the lakes this week for flour and wheat cargoes.

Nine hundred men are at work in the yards of the Superior Ship Building Co., but expectations are for a material reduction in the force shortly. Two boats are on the stocks, both in plating, the dry docks are unusually idle, and no vessels are in the water. Last winter's payroll at this yard ran about $60,000 a month. There is no anticipation that it will be half as much this winter.

FARMERS SHOULD NOT FEAR CANAL TAX.

In an address at the Seneca county fair last week Gov. Odell of New York devoted some time to a discussion of the enlargement of the Erie canal, saying to the farmers present:

"I have too much faith in the common sense of the people, particularly those of the rural communities, to believe that unworthy motives may prevent public improvements that mean the advancement and progress of the state; to believe that the fear of taxes may prevent New York from taking and holding her proper place in the great future. Each one of the 370,000 farmers in this state has an interest in the growth of the city of New York, because it is its principal market for their $245,270,600 worth of products; because their $55,474,155 worth of dairy products would be much less valuable if poorly-paid workmen were their customers. I make these suggestions because there is a possibility of the $1,069,723,895 worth of farm lands being taxed its proportion of the necessary amount of about $4,200,000 annually for the enlargement of the Erie canal. Do you understand how small and insignificant the amount would actually be if the tax were authorized and should be levied directly upon these lands?

"While I have faith in the promise that a direct tax shall not again be levied, and do not admit that the necessity will ever arise for it again, yet let us suppose that it will be, and what is the result? Of the total assessment of the state the land does not average much more than one-tenth. The average value per acre in the state is $47.23; in other words, a 100-acre farm would cost $4,723. The average assessment is but 50 per cent. and the assessed valuation of the 100-acre farm would be but $2,361. With the state valuation of $6,000,000,000, the average tax under a fifty-year bond plan would be 70 cents per $1,000 of valuation, or $1.65 on the 100-acre farm.

"If, therefore, better water facilities will bring into the state more manufactories; if we can bring the iron trade from the west; if your markets are enlarged; do you think that out of the prosperous future you men of the farm can afford to pay this small pittance for the building and support of this great improvement? I give these figures for the purpose of controverting the claim that increased tax burdens will follow, to the end that you may weigh this question more upon the lines of public utility and necessity."

QUICK DISCHARGE OF GRAIN.

Editor Marine Review: Thinking you would like to hear of one quick unloading grain plant on the Canadian side I wish to inform you that the steamer Westmount with 70,000 bu. wheat, barge Melrose with 50,000 bu. wheat and barge Selkirk with 50,000 bu. wheat, or 170,000 bu. in all, were discharged by the Montreal Transportation Co.'s elevator at this port, today, in exactly 8½ hours. From the beginning of the discharging until the last pound of grain had been discharged occupied just 10½ hours, but 2 hours of this was used up in shifting, etc. This is the best I have heard of in Canada and I thought you would like to hear of it.

THOMAS DONNELLY, Inspector.

Kingston, Sept. 26.

FOR THE ERIE CANAL AND A MERCHANT MARINE.

At the regular monthly meeting of the New York Board of Trade & Transportation, held in New York last Saturday, resolutions were unanimously adopted requesting all citizens, regardless of party affiliations, to vote at the polls in November for the improvement of the Erie canal. The resolutions were presented by Mr. Lewis Nixon and were adopted as follows:

"Resolved by the New York Board of Trade & Transportation that it is essential to the prosperity of our city and state and to their continued supremacy in commerce, manufactures, population and wealth that the people of the state at the general election to be held on Nov. 3 next shall endorse by their votes chapter 147 of the laws of 1903, entitled: 'An act making provision for issuing bonds to the amount of not to exceed $101,000,000 for the improvement of the Erie canal, the Oswego canal and the Champlain canal, and providing for the submission of the same to the people to be voted upon at the general election to be held in the year 1903.'

"Resolved, that we earnestly appeal to all citizens, without regard to party affiliation, to register and vote for the canal proposition upon the ballot for this purpose which will be handed each voter at every polling place on election day.

"Resolved that the president of the board be requested to appoint a special committee of fifty members for the purpose of bringing this important subject to the personal attention of all voters in Greater New York and to co-operate with similar committees if deemed advisable."

The committee on merchant marine, of which Aaron Vanderbilt is chairman, brought in a report telling what had been accomplished since the formation of the committee last May. Literature dealing with the subject of the decline of the American merchant marine has been circulated in thirty-five states, while at present the committee is sending circulars to all commercial organizations in the United States. The report says in part:

"The many responses that have thus far been received, principally through the columns of newspapers and periodicals scattered over thirty-five states and publishing the facts to the people of the country, disclose a very deep and earnest popular interest in the welfare of American merchant shipping. The demand that something should be done, and done at once, to save the remnant of our ocean-carrying trade seems to be as strong in the Mississippi valley as in the states that border the Atlantic and Pacific. The growing pride of our people in their navy has led to a better appreciation of its 'indispensable reserve,' a prosperous merchant marine. It seems to your committee that a condition of affairs in which there is a loss of 6,000 tons of the insignificant total of our registered tonnage during the past year, while not one new deep sea keel has been laid in an American ship yard since June, 1901, is a condition perilous and intolerable to a nation like ours, with its thousands of miles of sea coast, its vast trade and its glorious maritime traditions."

The most significant thing is that the efforts of the Board of Trade to bring about a revival of the American merchant marine have the sympathy of President Roosevelt, who has written to Mr. Vanderbilt as follows: "It is, I trust, unnecessary for me to say how deeply and anxiously I have studied the situation of our shipping. I shall go over your letter with certain public men, who in the past have shown their great concern in American shipping. I earnestly hope that we may be able to devise some method that will benefit this industry."

It is reported from Detroit that the fleet of F. L. Chesebrough, comprising the new steel steamers Kanawha and Kennebec, the wooden steamer Peshtigo and a new steel steamer in course of construction, will leave the great lakes and engage in traffic on the Atlantic coast. Capt. Charles M. Haight of the Kanawha is now in Boston making arrangements for the transfer. Both the Kennebec and Kanawha are first-class modern boats of canal size and were built at Port Huron in 1901 and 1902 respectively. The Peshtigo, however, is an old-timer, having been constructed at Trenton in 1869.

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LAKE SUPERIOR CONSOLIDATED.

Speyer & Co. will sell the Property to Establish their Interest in the Bonds—An Intelligent Analysis of the Causes which have led to the Shut-Down.

It is absolutely impossible to determine the status of affairs at the Sault, so many conflicting stories are about. The only thing which is definitely scheduled is that Speyer & Co., who as managers of a syndicate have a mortgage of $5,050,000 upon the property, are to sell the entire concern today (Thursday) at public auction. The sale is to be in bulk, only one bid for the whole of it to be entertained, and Speyer & Co. reserving the right to bid in the property. The sale is stated to be solely for the purpose of establishing Speyer & Co.'s title to the bonds, and that the bankers have no intention of indefinitely tying up the property or of interfering with negotiations for its revival. They are, however, intimately concerned in securing the money which they advanced.

Meanwhile all sorts of rumors are afloat. The latest is a telegram from Mr. Francis H. Clergue that he has secured money to pay Speyer's loan and that he wants the works to resume on Oct. 10. No one has been able to make head or tail out of that message. It is known, however, that it was sent by Mr. Clergue from New York to Mr. Lewis, superintendent of the steel plant at Sault Ste Marie. Mr. Clergue has given out a statement in which he pleads for a little more time. He urges the Canadian creditors especially, whose pressure he fears, to be lenient, saying that the property must eventually prove a desirable investment to them. He adds that not three-tenths of the capital expenditure has yet come into productive form in operating the works although the entire plant is now completed and ready to start up to its full capacity. Yet the small fraction of the plant now in operation has earned in gross in the last four months over $1,300,000 and in net over $600,000.

"This," says Mr. Clergue, "is at the rate of $1,800,000 net per annum, with less than one-third of our invested capital productive, and with our various nickel and steel works only now come into operation, having an earning capacity from orders practically on hand of $2,500,000 annually in addition. That under these circumstances our company has not been able to provide for the Speyer loan must seem unaccountable. Although I am confident that the present shareholders will be saved their entire investment, yet should they be obliged to suffer some loss, the continued operation of the plant at Sault Ste Marie to the substantial profit of the operators is quite as certain as the continued existence of the waterfalls at that point."

Still another story is that the stockholders' protective committee has formulated a plan of reorganization, entailing the formation of a new $40,000,000 company with an issue of $10,000,000 of bonds on the Algoma Central railway and an assessment of $3 per share on each class of stock. It would not appear, however, that there is much chance of reorganizing the company upon those lines in the present demoralized state of the market.

Other stories are that the Canadian courts have appointed Mr. B. F. Frackenthal, Jr., president of the Thomas Iron Co. of Easton, Pa., as receiver for the subsidiary plants, though no formal admission or denial of this appointment can be obtained from Mr. Frackenthal. On the other hand Judge Platt in the United States district court at New Haven, Conn., appointed Mr. John G. Carruth of Philadelphia, president of the International Title and Trust Co., as temporary receiver for the parent company.

Mr. James Bicknell, representing Speyer & Co., is now at Sault Ste Marie and he predicts the rehabilitation of the leading enterprises within a year's time on a much sounder basis than formerly. It is, of course, a mystery to the outsider as to why money should have been so abundantly furnished to build the industries and so parsimoniously doled out when working capital became needed; and this is explained solely on the theory that the large shareholders in Philadelphia grew finally reluctant to "throw good money after bad." Of course an impelling contributary cause has been the extreme stringency of the money market, supplemented by the fact that when Speyer & Co. refused to advance anything additional to their five millions other bankers became wary about taking a second mortgage. Distrust of the management has been a potent factor in the present financial difficulties. It was understood by Speyer & Co. that a million and a half of their loan was to have been set apart for the satisfaction of creditors on interim accounts. When it was found that the money was expended on further experiments the banking interests became frightened.

The duties of Mr. Bicknell will include that of examining into the condition and prospects of every industry, and the ultimate disintegration of the consolidated concern into its original elements is probable. The negotiations with the Vickers-Maxim syndicate are with regard to the steel and iron mining properties of the company. The pulp enterprises have never paid, but reorganization might put them on a better basis. The chemical enterprises and the patent in connection therewith are said to be very valuable, and the Algoma Central railway is likely to become an important link between Sault Ste Marie and the new Grand Trunk transcontinental railway. The outlook, therefore, is by no means hopeless for a prosperous industrial community at the Sault. So complicated are the affairs of the company, however, and so difficult the task of straightening them out, that it will be the work of months. The mechanics and laborers employed in the purely manufacturing enterprises must, therefore, seek employment elsewhere this winter. This fortunately is not difficult as agents are now at Sault Ste. Marie offering work to whoever will accept of it.

INTELLIGENT ANALYSIS OF THE MIX-UP.

About as intelligent an analysis of the affairs of the Consolidate Lake Superior Co. as has yet been published, is one contributed by B. K. Sandwell as special commissioner for the Toronto News, who has just paid a visit to the Sault. He has made a most enlightened inquiry into the causes which have led to the closing down of the works and his deductions will be read with great interest. Concerning it he says:

"The Consolidated Lake Superior Co. has been adjudged as if it were, or should have been, a going concern. It is not a going concern, and even had all gone smoothly during the past year, it would not in all probability have become one for two or three years more. It was formed and capitalized in expectation of enormous profits, and that expectation has been deferred again and again, but never disproved. Plants and railways worth about $25,000,000, but costing through initial errors at least $30,000,000, have been capitalized for a total of $117,000,000. Of this amount, $26,000,000 of paid-up preferred stock represents real money, and along with $5,000,000 or so of debentures is the entire genuine investment in the company. The preference stock is entitled to 7 per cent. non-cumulative—that is, the holders have no claim to back dividends, once the date for declaring them is past, and however great the profits thereafter, they must go to the common stockholders. The contingent profits above this annual 7 per cent. were capitalized at the enormous sum of $82,000,000 and common stock to the amount of $75,000,000 has been already issued. Of this $56,000,000 worth was for the acquisition of half that amount of common stock in the original companies that were absorbed by the existing Consolidated—the original Consolidated Lake Superior, and the Ontario Lake Superior; none of it represented value received, the entire amount in both these companies having been originally issued as premiums, with the preferred stock to represent contingent profits. Twenty-six millions went to the shareholders of the Algona Steel Co., whose plant of blast furnace, steel works and rail mill was in an extremely incomplete condition. Of the thirty-five million of preferred stock, nearly fourteen million went for the acquisition of the preferred stock of the before-mentioned companies, at what appears to have been a fair price for a real investment (the par value of the acquired stock was $12,000,000, and it was fully paid-up); twelve millions was issued for cash, and the rest is still in the treasury.

"If this enormous quantity of fictitious common stock had remained in the hands of those who accepted it, as it were with a pound of tea, there would have been far less trouble. But it was unloaded. To what extent the insiders who held the preference stock parted with their common at a price which they certainly knew had no present justification, we cannot for the moment tell. At any rate, it was to an extent that made it extremely doubtful whether they retained control of the company. For it is the weakness of the modern American system of company finance that it gives enormous influence in the management of the company to a class of shareholders whose interests are those of speculation rather than investment and who have contributed their capital to a stock gamble and not to the development of the property. A series of unfortunate circumstances soon made it clear to these secondary shareholders that the contingent profits they had invested in were much more remote than they at first imagined. They perceived that the common stock might come to its value in 1950, that indeed that possibility was the only excuse for issuing it, but that as far as the earnings of its earliest days as a going concern were involved, Consolidated Lake Superior was hugely over-capitalized. And just about the same time it became evident that it had on the other hand an immensely insufficient money capital. Since those discoveries there has been chaos among the shareholders of Consolidated Lake Superior and anything like consistent and enterprising management has been impossible.

MR. CLERGUE'S GENIUS AS A PROMOTER.

"Mr. Francis Clergue, an indomitable promoter, an ingratiating canvasser, a buoyant and slightly irresponsible manager, is the man in whose intellectual bias must be sought the reasons for the financial and commercial peculiarities of the Consolidated company. Mr. Clergue is in many ways an exception to the ordinary rules regarding American company promoters and constructors. Solidity has ever been one of his chief aims, rapidity of profits never. In a country which boasts no medieval fortifications, the Clergue works at the Sault, in their stupendous castellated and turreted stonework, their monumental solidity, are a unique type of architecture. Fifty years hence their construction will stand for thousands of dollars a year in the profit-and-loss account by reason of their freedom from repairs. Today it is simply an extra drain upon the inadequate amount of capital which Mr. Clergue secured to carry them out. This stonework is undoubtedly in itself a small mania with the Sault promoter. He has erected a costly stone fence around one of the flimsiest and most ramshackle summer hotels that it was ever in the wit of man to devise. The 'blockhouse,' in which he and his brother transact their business and occasionally dwell, is a more reasonable exhibition of the same partiality for the solid and immovable. Mr. Clergue 'thinks in centuries.' The result of his thinking is a scale of initial expenditure not unjustifiable in itself but utterly appalling to the economical American mind. It is not

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surprising to find him more at home in the world of British finance, where such ideas are bettter understood, and where profits are considered even at a distance of a quarter of a century.

"Another peculiarity of Mr. Clergue's mind is his faculty for correlation. It is doubtful if any man has ever succeeded in correlating under one management and into one self-contained whole such an extraordinary variety of industries. In an address a couple of years ago to the Toronto Board of Trade he showed how these industries, parts of no settled or fore-ordained plan, had grown out of one another, each, as it were, a by-product of some other. Some industries are so intimately related that a suspension or delay in the operation of one means the tying up of millions of capital represented in others. What the company lost through the failure of its American contractors to supply it with a blast furnace for eighteen months after the promised date can not be exactly estimated, but it may well be in the millions, and the ways in which the loss was felt can be clearly indicated. Unable to make its own pig iron, the company for a time employed its steel plant and rail mill upon purchased pig, so long as the market price of the latter remained low enough. They did amply sufficient work to demonstrate that given the proper Bessemer pig they could make first-class rails. But with the rise of pig they were unable to meet the quotations of the Steel Corporation. Their steel plant and their rail mill went out of business, their own iron ore mining operations were useless, their charcoal industry, with the product of which they intended to fire their furnace instead of coke, was useless, owing to charcoal being incapable of storage, and large plants for treating the by-products of the charcoal ovens, wood, alcohol and acetate of lime, were equally idle. The widespread effect of a single tie-up can thus be estimated; and in the distinctly fortuitous and haphazard working out of Mr. Clergue's problems this is not the only instance of such a delay.

ERRORS OF JUDGMENT AND OF CALCULATION.

"Nor is delay the only thing which, in the same haphazard working out has involved the company in heavy loss. The company's own ore supply, so far as at present developed, consists of a highly phosphoric deposit, giving when treated by the ordinary furnace a brittle and over-hard iron. This kind of deposit is common enough to European scientists, and the objection is overcome by the use of a 'basic converter' lined with some basic material, which combines with the excess of phosphorous in the ore and passes off by degrees as slag. But the basic converter is not popular in America. The Consolidated company is trying to make steel with a phosphoric ore by means of a non-basic converter. If they ever succeed in securing a sufficient supply of non-phosphoric ore to reduce their percentage of phosphorous to a workable quantity their converter will be all right, but it is one of the most extraordinary initial errors of the whole business that they should have installed the wrong kind of appliance for the treatment of a perfectly well-known ore. It is now stated that the requisite ore supply has been found at Loon lake, a property which does not belong to the company and will require a further outlay of capital for its acquisition; while in the event of this resource failing a new converter is the only remedy.

"The rail mill, if only the subsidiary plants necessary for its working can be put in good order, should prove one of the finest properties of its kind in the world. It employs less labor, being better fitted with labor-saving machinery, than any similar existing plant; it is the only rail mill in Canada at a time when enormous railroad projects are under way; it has an extremely solid and well-laid railway track running from its gates to within 50 miles of the proposed Grand Trunk Pacific, and chartered to cover the rest of the distance; it has an unlimited supply of iron ore at the Helen and Josephine mines, and instead of coke it can secure all the charcoal it needs by a process whose by-products pay for its operation. Its motive power is entirely electric, derived from the Sault water power, which is one of the cheapest in the world. There is one exception in the shape of the mill which gives the rails their final shape and in which the pressure required is so immense and so sudden that no discovered electric regulator can control it; and this is operated by steam as in all other rail plants. In other respects the cost of handling and milling the rails should be much less than can be met anywhere else on this continent, and as low as it is made in Europe by the low rate of wages.

MORE BUILDING FOR THE FUTURE.

"Another instance of building for the future, which would probably have gone uncriticized had the company's capital account been strong enough to stand it, is the eight-penstock power house on the American side. This enormous work, besides being the victim of some important errors in construction which delayed its opening nearly a year, was put through on a scale for which there can be for years no proportionate demand. No great city lies within transmission distance. No factories at the Sault at present offer a market for its enormous surplus of power. Only a newly-erected carbide factory has a contract to take a heavy slice of it at a price which it is stated will pay interest on the bond issue. There seems no reason to doubt the ultimate marketing of the whole 60,000-H. P. development, but in the meanwhile the power house, costing, as it did, considerably more than was expected, and tying up the invested capital for a year beyond the calculated period without interest, is a heavy white elephant. When it does begin to be profitable it will assuredly reap the reward of the solidity and durability that have been put into it. It was one of the chief points of attack in the bear movement against the stock and credit of the company, and was further weakened by a vexatious suit for infringement of water rights which, if successful, would have ruined its entire franchise.

"In view of the fact that almost all of these enterprises have at one time or another been running to their nominal capacity, it may seem contradictory to state that the Consolidated has never been a running concern. But it is true. The various industries have never been operated consistently and methodically so as to play into one another's hands. They are indispensable to one another. The estimate of profits requires that they shall provide markets for one another. The rail mill may have made a small profit on its own capitalization when it was making rails out of imported pig iron; it certainly was not making profits for the whole concern, including the idle or unfinished pig iron furnaces, charcoal kilns and acetate of lime plant. The metal section of the company's possessions alone has never been running in its completeness, and the cost of the delay in getting it running is certainly chargeable to capital account and not to profit and loss.

CLERGUE'S VISIONARY AND IMPRACTICAL IDEAS.

"The delays and errors which have been alluded to, and others like them, are amply sufficient reason why the prime cost of the originally planned works should have exceeded ordinary estimates by 20 or 30 per cent. But beside these it has been found necessary to expand the circle of plants here and there in order to provide another raw material or utilize another by-product; and not merely has money been spent on uncontemplated but perhaps necessary extensions, but it has been thrown recklessly into properties which had no connection with the general plan. At this date, and in view of the fearful stringency of money to which the company was afterwards reduced, the purchase of the Intercolonial hotel seems little short of insanity. Mr. Clergue's admirable solicitude for the welfare of his burg led him into paternalistic purchases on behalf of his company which used up the money that ought to have been concentrated upon the completion of the main group of industries. He built street railways, excellent things and highly profitable; but the company had insufficient capital, and needed blast furnaces. He built stone walls around a hotel, but the company cried aloud for Bessemer iron ore. With the best intentions, and with hopelessly inadequate finances, Mr. Clergue set out to put the seal of Clergue upon everything at the Sault. And then the concern ran out of capital, long before full revenue was due and at the worst possible moment for floating a loan. The majority of the 'insiders' had already taken advantage of temporary booms and the speculation craze to part with their common stock; and people who had bought at ten or twenty a stock originally given away as a premium, and probably twice watered to 100 per cent. since then, grew clamorous for immediate dividends. A stock that should never have been put on the market slumped and the credit of the company went by the board.

"The over-capitalization would not have deterred investors from loaning money to the company, or even buying at a small discount the preferred stock left in the treasury, but for the disgruntled attitude of the huge body of common stockholders and the impossibility of telling what they would do in regard to the management. It was not necessary to provide these seventy-five millions with dividends, but they could make it exceedingly unpleasant for the company if they did not get them. Also, about the same time the most unpleasant rumors got about regarding the real value of the property, and many investors seem to have concluded that the failure to find a non-phosphoric ore would render it practically valueless. Mr. Clergue, assailed on all sides by vituperation, withdrew, ostensibly for vindication. The straits to which the company was reduced for money were shown by the fact that to raise $5,000,000 it had to give a New York banking firm a mortgage on its every uncovered security. The achievements of Mr. Cornelius Shields as head of the Consolidated under such circumstances afford no criterion of his fitness for the position. Brought in at a large salary on the strength of his work as executive head of a steel plant, he had no opportunity to be executive head of anything at the Sault, for he spent the entire time of his engagement in a futile endeavor to raise money. Certain economies he did, indeed, effect in the operating costs at the Sault, but it is probable that he did little more than reduce to the proportions of a tentative enterprise the staff which Mr. Clergue had installed with all the magnificence and lavishness of a vast paying concern.

CLERGUE'S IDEAS VAST AND METHODS EXTRAVAGANT.

"For Mr. Clergue's ideas were as vast in the process of manning his undeveloped plant as in that of designing it. He made of the Sault, 500 miles from any great city, a center of light and leading. He gathered around him men of brilliance like himself, a good many of them men of but little more practicability than himself, and he paid them salaries that enabled the Sault to blossom with fair, vine-embowered cottages and stately piazza-fronted houses, and gave the place a continental reputation for hospitality. There was no deferring of the rewards of toil until after the reward of capital had been paid. The two towns profited enormously by this policy, and it is likely that they have not yet realized, in their wrath against the absentee capitalists of the company, how much of those capitalists' possessions was distributed in the channels of Sault trade.

"Here, then, is one more item in the loss of capital that must be charged up to the Clergue enterprises—the huge sums spent for management and operation before profits were in sight. By this time, if the entire self-contained scheme of the original con-

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solidation had been carried out, it would have cost from 50 to 100 per cent. in excess of the original estimate, and, owing to errors and delays, at least 30 per cent. more than a similar project carried out with more thoughtfulness. It was this, far more than the presence of seventy millions of non-contributing stock, that led to the crash. The plant did not have to earn interest on the water; it did have to earn interest within a reasonable space of time on the money really put into it, and it could not do it. The consequences of such initial extravagance were inevitable, and the only regret is that they must fall, not only on the men whose capital was squandered and who refused to redeem themselves by accepting the loss and covering it, but also by the entire towns, and especially that on the Ontario side. The workmen and merchants of Sault Ste. Marie had no control of the situation and are suffering for the fault of others. The stockholders are more or less to blame for their own troubles—and the less trouble they have the more they may be to blame.

"The immense value of the Clergue properties is as undisputable today as three years ago. The existing owners will be compelled to sell out, since they have refused to reconstruct. They will get nothing for that part of their money which was spent in error, and but a part of the value of what is really substantially invested. The loss will be mainly felt in the United States, and its effect in Canada will probably be less than that of the recent slump in Sloss-Sheffield or Twin City or other American properties held on this side. The real estate and trade of one of our most flourishing towns, however, will suffer complete paralysis until the legal and financial formalities of the transfer can be entirely completed and the plants restored to working order. To the labor element the loss will be much less severe. It happens most fortunately that the demand for men of any kind who are willing to work in the woods is this autumn practically insatiable, and beyond the hardship of deferred pay few are likely to suffer.

"It is not likely that the business of the Consolidated company will ever be resumed on the lavish scale that characterized the Clergue regime. But the natural advantages of the location and the real value of the properties are such that even under a conservative management they should shortly bring as great a degree of prosperity to the town. The increased certainty that will come of adequate capital and not excessive capitalization will be no small factor in this restoration. It seems likely now that the properties will not all pass to the same hands. Although Mr. Clergue's principle of correlation cannot be dispensed with within certain groups, the Consolidated plants can readily be broken up into at least three sections, which will find themselves complete, each in each, and compelled to work harmoniously together. The land and colonization branch can be made entirely separate from the lumber industry, and the latter again can be kept distinct from the mining, smelting and metallurgical. The great difficulty of adequate central management, solved neither by Mr. Clergue nor Mr. Shields nor Mr. Coyne, would then be reduced to a minimum."

DEATH OF CAPT. RICHARD NEVILLE.

Capt. Richard Neville, one of the best known of vessel masters on the great lakes, died at his home in Cleveland last week.

Capt. Richard Neville.

Capt. Neville was a Clevelander, having been born in that city about sixty years ago. During the civil war he enlisted in the Forty-first regiment of Ohio volunteer infantry and served for three years. At the conclusion of his military service he returned to Cleveland and engaged in the lake trade, beginning as a common sailor. He won promotion rapidly, however, and in six years was made captain. His first vessel was the old schooner Col. Cook, and he afterwards commanded the schooners David Morse, Goshawk, Kate Winslow and Niagara of the Winslow fleet. His first steamer was the James Lord and he later commanded the steamers N. K. Fairbanks and Samuel Mather. In 1890 he superintended the building of the steel steamer John W. Moore and he was master of her until three years ago when he retired. He leaves a widow and four children, Sophia, Edwin, Mary and Richard, all of Cleveland.

Detroit has entered the lists of ore receiving ports by the arrival there of the steamer City of Genoa with 3,900 tons of ore for the new Detroit Iron & Steel Co. Other shipments are to follow regularly now as the furnace has a capacity of 350 tons of pig iron per day. It is hoped to deliver 100,000 tons there before the close of the season.

AROUND THE GREAT LAKES.

The tug Parnell, owned by the Great Lakes Towing Co., which sank in the Niagara river last Tuesday, was raised this week.

The steamer Meriden, owned by Thos. M. Ryan of Buffalo, was damaged $10,000 by fire at Toledo Sunday morning. Repairs will take several weeks.

The barge Agawa, of the Sault line was tied up at Ashtabula last week by the United States marshal on a claim of the American Ship Building Co. for a $5,769.56 repair bill.

The steamer building at the Detroit yard of the American Shipbuilding Co. for Mr. M. J. Cummings of Oswego will be named Western Star. She will be launched next Saturday.

Work has been started on the extension of the American Ship Building Co.'s dry dock at Lorain. It is to be extended to a length of 620 ft. When completed it will be the largest dry dock on the lakes.

The body of Capt. M. L. Gotham of the steamer J. Macy, which foundered in Lake Erie last fall was found off Long point this week by the crew of the tug Violet and taken to Erie, where it was identified by George Boch, a son-in-law.

Wrecking Master Broderick of the Great Lakes Towing Co. this week floated the tug Ben Campbell, which has been on the bottom in Sycamore street slip, Cleveland, for a year. She will be towed to Fairport, where she will be rebuilt.

In endeavoring to leave the harbor at Huron during a gale the steamer Christopher was forced out of the channel and grounded. One thousand tons of coal had to be lightered by the lighter Newman before the steamer was again free.

The screw steamer Aemelius, designed by I. Gillespie for a sand and dredging company, has been put in commission at Toronto. The Aemelius is intended to supply builders with washed lake sand of superior quality for concrete and plaster work. She is 116 ft. long, 27 ft. beam and 17 ft. deep. The boat is driven by twin screws, with power supplied by high pressure engines. Her capacity is 230 cu. yds. of sand.

The last stone in the great Buffalo breakwater was placed on Thursday last in the presence of the government engineers and a number of business men. The contractors, Hughes Brothers & Bangs, will remove their apparatus to Cleveland for use on the breakwater contract in that city.

For failure to report the arrival of his steamer at the custom house in Duluth when coming from a foreign port, Capt. Serette of the steamer J. S. Fay has drawn a fine of $1,000 from the United States authorities. The Fay came without cargo from Port Arthur and the captain claims he forgot to report.

Capt. McDowell of the steamer Kearsarge takes exception to the report that he delayed his trip down Lake Michigan on account of fearing that heavy weather might cause the explosion of a cargo of powder. He says there was no such an item in the cargo, and, moreover, the government rules will not permit the carrying of explosives.

Concerning the reports in the newspapers that the Canada Atlantic Railway Co. of Ottawa, Can., is to put two passenger steamers in the lake trade, Mr. E. J. Chamberlain writes to the Review to say that the announcement is entirely unauthorized and that the company does not contemplate doing anything of the kind, at least for another year.

When the schooner Biwabik, coal laden from Buffalo, reached Milwaukee Capt. Ludwick reported the loss of Mate Joseph Krusel during a terrific storm on Lake Huron, Wednesday of last week. Shortly before noon, when the schooner was off Presque point, Krusel was swept overboard and tossed under the bow of the boat. Just then the ship plunged heavily and struck Krusel with terrific force. The mate sank at once and did not reappear. Krusel lived in Maine City, Mich.

Hiram Adams, first mate of the passenger steamer Kalamazoo of the Dunkley-Williams Line at Chicago, is the recipient of a handsomely inscribed gold watch in recognition of two deeds of heroism while on duty last summer. In one instance he dived from the steamer's upper deck to save a woman; in the second instance he dived from the dock to save a boy. President Dunkley concluded not to wait for congress to recognize the bravery of the mate and accordingly presented him with a gold watch.

The steamer R. E. Schuck was detained sixteen hours this week on the crown of La Salle street tunnel. The Schuck reached Chicago at 5 o'clock Sunday with 3,000 tons of coal from Erie. Her draught was 18 ft., which proved 6 in. too much for the obstruction at La Salle street. The situation was made worse when tugs tried to pull the boat across the tunnel. They had her half way across when the water fell. They were unable to release the vessel until the wind swung into the east and brought the level of the river up.

When the steamer John Craig was put up at underwriter's sale at Detroit two weeks ago Mr. James Davidson of West Bay city bid $18,000 for the vessel. There was some competition in the bids, but at this juncture the Great Lakes Towing Co., through Frank Masten, attorney, filed a libel for $32,000 for saving the vessel. The underwriters declared the sale off. Last week the vessel was offered at marshal's sale and Davidson secured it for $11,000, or $7,000 less than he had offered the week previous. The marshal's sale, of course, could not be declared off and as certain bidders were absent from the second sale as good a sum as was first offered was not realized. Mr. Gilchrist bid $10,000, but would not go beyond that figure.

A telegram from Montreal is to the effect that from the

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opening of navigation to Sept. 1 the shipment of wheat across the ocean from the port of Montreal amounted to 11,065,000 bu. as compared with 10,647,000 bu. for the same period last year. From the opening of navigation to Sept. 1 there was shipped 4,604,000 bu. of corn, as compared with the abnormally low record of 58,000 bu. for the same period last year. The shipment of rye also shows a good increase over last year, the figures being 557,000 bu. as compared with 378,000 for last year. Last year at this time Montreal had slightly surpassed the port of New York in its grain shipments, the excess being a little over 400,000 bu., but this year the figures show that New York has continued to fall behind and that now Montreal surpasses us by nearly 2,000,000 bu.

A dispatch from Boston, which is confirmed by officials in Detroit, gives particulars of a new movement on the part of the Pere Marquette Railway Co. that will enable it to better systemize the operation of the system and render its operations more effective. The steamship fleet owned and operated by this company is to be organized as a distinct company. This new organization is to be known as the Pere Marquette Steamship Co., and while it is owned by the railway company and is to be operated in connection with the system as heretofore, the management of the fleet will be under the steamship company. E. F. Blomeyer, who has been general freight and passenger agent of the St. Louis & San Francisco for Missouri and who recently resigned, is to be president of the Pere Marquette Steamship Co. Joseph Goldbaum of Saginaw, who has been one of the traveling auditors of the Pere Marquette railway system, has resigned his position as such to accept the position of auditor and treasurer of the Pere Marquette Steamship Co. It is understood that the headquarters of the steamship company is to be at Milwaukee.

WILL CHAMBERLAIN POPULARIZE DISCRIMINATIONS?

Friends of American shipping are watching the progress of Joseph Chamberlain's propaganda in behalf of preferential tariffs with deep interest His success would mean the abandonment of free trade by Great Britain and in its stead the adoption of a protective policy of discrimination. If Great Britain discriminates in favor of her colonies in the duties she collects on her imports, and her colonies discriminate in favor of Great Britain in the duties collected on their imports from Great Britain, as Chamberlain proposes, the policy of discrimination will be in full effect in Great Britain. The rest of the world will be quick to follow Great Britain's lead in a manner promotive of their interests. It will not be necessary to adhere closely to the details of the British policy, so long as its principles are the guide. Let us consider what this might mean for the United States:

The objection to subsidies and bounties for the upbuilding of American shipping is found in the necessity for extending the payments to all American vessels, whether mail carriers or not, engaged in the foreign trade. The unpopularity of subsidies and bounties might menace their stability as an enduring policy. The policy of discriminating duties, on the contrary, fully overcomes this objection, by making it attractive to the shipper sending goods to the United States to employ the American ship, in order to escape the higher duty that would be levied upon his products if sent here in foreign vessels. Many people in the United States strongly lean toward the old discriminating duty policy, a fact that was emphasized when in the closing days of the last congress every Democratic member and one Republican member of the house merchant marine and fisheries committee voted in favor of reporting the Belmont discriminating duty bill—an action that was taken immediately following the tabling of the ship subsidy bill by the same committee.

It has been thought, (to explain), that if a higher duty were levied upon imports in foreign vessels than were collected on imports in American vessels, such a demand would be created for the latter as to cause their rapid construction and profitable operation. The great bugaboo of taking money out of the treasury of the nation would be avoided, and money would go into the national treasury instead of into the pockets of the ship owners. This feature makes the discriminating duty policy very attractive to those who study its details. The necessity for changing a great many treaties now in force between the United States and other countries is regarded as the most serious obstacle. These treaties inhibit the collection of any different duty on imports in foreign vessels than is collected on imports in American vessels, in our ports. The free admission of so many of our products into British ports has made our statesmen reluctant to adopt a policy, as to shipping, so contrary to Great Britain's policy toward our products. But the success of the Chamberlain preferential tariffs would be a discrimination that would hit the United States the hardest, a fact that would justly provoke us to retaliation, and in no other way could our retaliation be made more effective than through discrimination in the collection of duties on imports brought here in favor of our own ships. The adoption of the Chamberlain preferential tariffs policy would inevitably reduce the volume of our exports to Great Britain and increase the exports of her colonies in corresponding degree, much to our disadvantage. This discrimination against American products by Great Britain would give just the impulse to the readoption of the policy of discriminating duties for the upbuilding of our mercantile marine that many of its friends have been longing and looking for.

What it might be unpopular for the United States to do, so long as existing British fiscal policies which are to our advantage remain unchanged, would very quickly become popular if British fiscal policies were changed to our disadvantage. Nowhere is this more keenly realized than in Great Britain. If British statesmen imagine that shipping is so lightly regarded in the United States that retaliation against Great Britain would take any other form than a discrimination in favor of American shipping in the foreign carrying trade they deceive themselves. The American people, and especially their representatives in congress, would embrace such an opportune method for settling the vexed and annoying shipping question with prompt satisfaction and profound relief. British statesmen may think that their shipping interests are so well established in the United States, and their influence through so many diverse channels so powerful, as to suffice to keep in check any serious consideration by American statesmen of a discriminating-duty policy for the rejuvenation of their shipping. Or, again, it might be thought that Great Britain by imposing a countervailing discriminatory duty on American imports into Great Britain in American ships would thus restore the *status quo ante*, but Great Britain would be helpless if the United States confined the application of the discriminating duty policy to imports in foreign ships from countries other than their own alone. For example, if a British ship brought British goods from a British port there would be no discrimination, but if the imports were brought in a British ship from, say, a Brazilian port, then levy a discriminating duty. This would seem to the American people to be the very essence of just retaliation, and it would give the needed stimulus to a long-neglected American industry glorious as to its traditions while striking a telling blow where Great Britain would feel it most keenly and relish it the very least—in her shipping.

The preponderence of British shipping in our foreign carrying irritates and chafes us, British high protection of her shipping baffles us, while a deep-seated resentment is felt throughout the United States at the excessive generosity shown by Great Britain in its recent contract with the British Cunard Steamship Co.—a generosity which, it is believed, was intended as a warning to those who are ambitious of rivalling British shipping to carefully count the cost, and further intended to utterly discourage American competition with Great Britain in shipping. Had the British government shown such generosity to a British line running to a British colonial port its sinister purpose would not have been so manifest, but when Great Britain agreed to loan $13,000,000 at the excessively low rate of 2¾ per cent. and pay subsidies aggregating $1,090,000 a year for twenty years to the Cunard Line for putting on two ships in the trade with the United States the aim of the British government was unmistakable. When we come to recall the persistence of Secretary of the Treasury Shaw's insistent reiteration of the desirability of increasing American trade with South American countries through the establishment of American steamship lines under government protection, it must be manifest that the American administration is keenly alive to the changes that seem to be impending and perhaps far more alert than has been supposed as to the most effective and most popular of the several retaliatory arrows now reposing so quietly in the American quiver.

SHIP YARD NOTES.

John Arbuckle of New York has given an order to A. D. Story, Essex, Mass., for a wooden steamer to cost $40,000. She will be 140 ft. over all, 28 ft. beam and 12 ft. 6 in. deep. As soon as the hull is finished she will be towed to New York to be fitted with her machinery.

Two wooden vessels were launched at the Kelley-Spear Co.'s yard, Bath, Me., last week. One was the three-masted schooner Frank Huckins for Charles S. Hirsch & Co. of New York, and the other the tug Quequechan for the Staples Coal Co. of Taunton, Mass. The schooner is 158 ft. long, 35 ft. wide and 13 ft. deep. She is especially constructed for the southern lumber trade. The tug is 85 ft. long, 20 ft. wide and 8 ft. deep. Her machinery was supplied by the Bath Iron Works.

An immense artificial cascade has been determined upon by the authorities of the Louisiana Purchase Exposition as the centerpiece of the semi-circular lay-out of the principal buildings. The cascade itself will be divided into three parts; a large middle cascade with a smaller one at each side, the water flowing directly into the head of the grand basin. In all, about 90,000 gallons of water per minute will be supplied at a head of 159 ft., forming the greatest artificial water effect ever attempted. The water will be taken from the grand basin itself and will be raised to the top of the cascade by a pumping station located under festival hall. The pumping machinery will consist of three 36-in. single-stage, turbine centrifugal pumps purchased from Henry R. Worthington of New York city, each driven by a 2,000-H. P. Westinghouse alternating current motor. The total horse power utilized will thus be 6,000, making this the largest electric pumping station in the world. The pumps and other pieces of machinery for this plant are now being installed at St. Louis.

San Francisco and Los Angeles.—Via Nickel Plate Road. Greatly reduced fare Oct. 7 to 16 inclusive. Tickets good to return till Nov. 30, '03. Get special features including stop-over privileges, etc., from nearest Agent or address E. A. Akers, C. P. & T. A., Cleveland, O. Oct. 15. 166

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INLAND WATERWAYS OF EUROPE.

The British foreign office has recently issued a pamphlet containing reports from the British representatives abroad on the navigable inland waterways of France, Belgium, the Netherlands, Germany and Austria-Hungary. These reports were obtained at the request of the Association of Chambers of Commerce of Great Britain, who have for some time past been considering as to what extent the waterways of Britain could be improved and developed with a view of providing a cheap means of transport. The points on which information was asked were: First, the amount of capital expended during the past twenty-five years; second, the tolls chargeable on traffic and the manner in which interest on capital is provided; third, as to the results which have followed improvements with regard to railways, seaports and the trade and commerce of the country.

France.—The report from France shows that during the seven years, 1871-78, following the Franco-German war, a sum of £9,640,000 was expended by the government on the improvement of the waterways and maritime ports. The chief works carried out during this period in connection with the waterways were the construction of the Canal de l'Est; the canalization of the river Saone; the increase of the depth of the Seine; and the canals of the departments of the Nord and Pas de Calais. At the expiration of this period a new and comprehensive scheme was settled, the aim of which was to obtain a uniform section for the first-class waterways, so as to make them available for barges carrying 300 tons, and for this purpose providing a minimum depth of 6 ft. 7 in., locks 127 ft. long and 17 ft. wide, with 12 ft. headway under bridges. In the execution of this program £18,000,000 were spent in the years 1879-1900, the total length of first-class waterways being extended from 906 miles to 2,930 miles. The principal natural waterways—the Rhone, the Saone, the Marne and the Seine—were greatly improved; a canal, 15½ miles long, was made between Havre and Tancarville, to enable river craft to reach the docks without entering the Seine estuary, a new canal, 29 miles in length, was constructed from the Oise to the Aisne, in order to permit of boats circulating between the coal fields of the department of the Nord and the industrial regions of the east.

The total length of French inland waterways comprises 7,330 miles of river and 3,045 of canals. The Canal de l'Est, which lies partly along a riverhead, cost £14,924 per mile; the Oise, £48,276; the Tancarville canal, £64,516 per mile; the 145 miles of canal now under construction are estimated to cost £33,103 per mile. The amount spent on the Rhone between Lyons and the sea since 1860 runs out at £15,360 per mile, the result being only a very mediocre waterway. On the Seine, from Paris to Rouen, the cost of obtaining the uniform depth of 10½ ft. has been at the rate of £17,631 per mile. Practically the whole of the waterways in France are the property of the state, and are maintained out of the public funds, free of all tolls, which have been entirely abolished since 1880. Water transport has increased from 20,000,000 tons in 1878 to 32,000,000 in 1898, and the average kilometric tonnage from 2,000,000,000 in 1880 to 4,673,000,000 in 1890. On the Seine, which has the greatest intensity of traffic, the kilometric tonnage rose from 323,000,000 in 1880 to 963,500,000 in 1899. During the same period the kilometric tonnage on the railways rose from 11,000,000 in 1883 to 16,500,000 in 1900. Although the waterways have thus rapidly come to the front as a means of transport during the last twenty years, it is shown by figures in the report that the net cost of transport is appreciably higher by water than by rail. The net cost of water transport, as represented by the freight paid to the barge owner on the best canals, averages about 1 centime per ton per kilometer. On the railway the net running expenses of a goods train work out at .60 to .80 of a centime per kilometer per ton by railway as against 1 centime the cost of transport by waters.

The improvements made in the waterways have been attended by a great development of water traffic, while at the same time the railway traffic has also increased. The cost of transport has been lowered both by water and rail as the result of the improvements, and lowering the rates on railways have contributed in developing the trade of the country. This gain, however, has been secured to the freighter by the protective policy of the state in financing the canals. Mr. O'Beirne, the reporter, raises the question whether it would not have been less expensive and more advantageous to have built entirely new lines of competing railways than to have spent the money in improving waterways. The cost of construction of such railways, with rolling stock and equipment, in France may be put at £27,520 per mile, which is below the cost given for improving or constructing the main waterways.

Belgium.—The total length of the navigable waterways in this country is 1,372 miles, of which 1,118 miles are administered by the state. The capital expended by the state during the twenty-five years 1875-1900 on the improvement and upkeep of the navigable waterways, harbors and coasts, has been £16,000,000. As a general rule the tidal rivers are exempt from tolls; on the other waterways the toll is fixed at .016f. for the canalized rivers, and .005f. for the canals per ton kilometer. The revenue from the tolls is not sufficient to reimburse the state for the expenses incurred in keeping the waterways in navigable order without any allowance being made for interest on the capital expended. The traffic on the waterways has increased from 225,000,000 ton-miles in 1880 to 560,000,000 in 1890, equal to 150 per cent. During the same period the tonnage of freight has increased on the railways from 14,000,000 to 40,000,000 tons.

Germany.—The rapid extension of waterways in this country during the last few years is considered to be due to the great increase in technical knowledge in connection with river and canal works, to the improved form of vessels, and to better appliances for haulage. It was realized that the old style of canal, with small craft and slow tonnage, was not able to compete with the railways, and that the waterways, in order to become of practical use, must be able to accommodate vessels of from 450 to 600 tons towed by steam tugs. The length of waterways within the German empire is 8,798 miles, of which 5,776 miles are rivers, 1,451 canalized rivers, 1,510 canals, and sixty-one ship-canals. The number of steamers in use increased from 830, representing 33,155 tons, in 1882, to 1,953, representing 104,360 tons, in 1897. The number of other craft rose from 17,885, representing 1,625,111 tons, to 20,611 vessels with 3,266,087 tons. The rivers Vistula, Oder, Elbe, Weser, Spree, Havel, Moselle, Rhine, Main, Warthe, Pregel have been regulated and improved since 1879 at a cost of nearly £14,000,000, the object being to keep the water of these rivers, even at the lowest period, in a broad, deep stream, sufficient to allow of navigation at all times of the year, and, where a navigable depth could not be secured by this means, by canalizing the rivers. The size of river craft has very greatly increased, the largest barges having a tonnage of 2,340 tons on a draft of 9 ft. The largest freight steamers have a tonnage of 975 tons with a draught of 7 ft. 10 in.

The Netherlands.—From the physiological conditions of this country canals, as a means of transport, had become so firmly established that railways only obtained a footing very slowly, and in order to prevent the country falling into a state of isolation, and consequent decay, it was recognized that the state only would be relied on to provide a remedy. State railways were therefore constructed at the cost of the nation and then handed over to private companies to work them, who provided the rolling stock. The profits were divided between the state and the contractors, but the amount received by the former has never sufficed to cover more than 1 per cent. per annum on the capital. The contractors are thus enabled to establish tariffs which railways constructed by private enterprise could only charge at a loss. As far as local inland goods traffic is concerned it is only by the most strenuous exertions, and by the combination and grouping of funds for special districts, and by a reduction of rates to the lowest possible limits, that the railways can compete with water carriage. On the whole the waterways have profited to a much greater extent proportionately by the general increase in goods traffic than the railways. Much of this is owing to the great improvement in the manner in which the water traffic is now carried on. The number of small goods steamers and tugs employed on the waterways has immensely increased, and the saving in the time employed in transport has been correspondingly great. At present the means of transport by water is undergoing a revolution, owing to the introduction of the cheap, small and practical petroleum motors, which can be fitted to almost every description of craft, and which are at present so much in demand for this purpose that it is impossible to secure delivery of new motors for several months to come. The amount expended by the state on the improvement and maintenance of the waterways during the period 1862-1901 is £15,808,138; of this £11,249,044 has been for the improvement of the Maas from Rotterdam to the sea; the construction of the North sea and Amsterdam canals and the Merwede canal. The total length of these waterways is 124½ miles, and the cost was at the rate of £87,202 per mile; the other canals and waterways extend over 172 miles, and their average cost is £26,506 per mile.

Austria and Hungary.—The internal navigable waterways of Austria extend to a length of 4,000 miles, of which 2,356 miles are only available for rafts and the remaining 1,644 miles for ordinary navigation, of which 806 miles are navigable by steamers not exceeding a draught of 6½ ft. The regulations of the rivers in this country have had a twofold object, for increasing the depth for navigation and improving the passage of flood water for the prevention of inundations. This is accomplished by a system of low-water regulation by making a deep low-water channel in the bed of the rivers, and when this is not satisfactory, by canalizing the streams. The internal navigable waterways of Hungary extend to a length of 3,082 miles, of which only 1,904 miles are available for steamers.

The capital expended on the regulation and improvement of the waterways is a *fonds perdu*, and no tolls are levied on navigation. Tolls are, however, levied at the Iron Gates of the Danube, with the object of providing for the interest and amortisation of the outlay, but so far the amount received has only reached £21,000, while the annual cost of maintenance is £8,333, and the annuity paid for the amortisation of the loan amounts to £62,500. A law was passed in Austria in 1901 providing £10,000,000 for the commencement of a network of navigable canals and river regulations; this is expected to cover the cost of works up to 1912, when a new credit will be required. The question of inland navigation is now entering upon a new and important phase by a proposed scheme of navigable canals to extend over the Dual Monarchy and to bring Fiume, the only seaport in Hungary, into direct communication with the river system of the country by the aid of a canal between the Danube and the Save. The river traffic of Austria is steadily on the increase, a striking example of this being shown by the results on the Danube, where an average tonnage rose from 315,930 tons in 1890 to over 1,503,165 tons in 1900. In Hungary the traffic has increased from 2,500,000 tons in 1888 to 3,750,000 in 1901.

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SEEN AND HEARD ON THE LOOKOUT.

It was during some naval maneuvers recently that of six torpedo boats, steaming at great speed in what is known as "wedge formation," three were placed "hors de combat" through the breaking of a wheel-chain. After the accident the question was asked why these boats were allowed to come in such close quarters while going at top speed, and the intention of forming what football players would term a "flying wedge" was given as explanation.

Five torpedo boats, moving swiftly, are expected to protect the sixth of their number with their own frail sides against the fire of one of the enemy's battleships that has been selected as their prey.

Naval authorities are unanimously of the opinion that, though five members of this "flying wedge" are doomed, the sixth has a good chance to launch a torpedo and thus destroy the battleship in question.

The cost of a torpedo boat is $750,000, and it carries a crew of about forty, so that in order to destroy one battleship in the manner above indicated the lives of 200 men, to say nothing further about the five boats, must be offered on the altar of Mars. During a bull fight some one claimed that this distinctly Spanish sport could never become popular in Anglo-Saxon communities because the odds were too unequal, and that the bull, while some times able to do some damage, had no chance to retain his life, fight he ever so valiant.

However, this may be, the crews of the five torpedo boats, cooped up in their steel coffins, are in the prize bull's predicament, and above each of these boats' gangways the inscription on the portals of Dante's Inferno might be appropriately displayed: "Abandon hope all ye who enter here." Though disgraced for this very reason one of the followers of Leonidas survived the unpleasantness at Thermopilae; several members of the Light Brigade could have furnished Tennyson with data for his poem anent the Balaklava affair; the sinking of the Merrimac did not result in loss of life, but, of the 200 men comprising the crews of the five boats selected to shield one of their number not even one has a single remote chance of saving his life.

The non-martial among us will hold to the opinion that to be a live ass is preferable to being a dead hero; a yearly increasing number of citizens will listen approvingly to Tolstoi's Gospel of Peace, while the views of all must coincide with the gentleman's sentiment who so vigorously held that "War is Hell."

A short while ago the crew of a dismasted coasting schooner took to their boats, and after passing an uncomfortable night in their narrow quarters were picked up by a tug. All such cases where sailors save their lives by means of the ship's boats are ever referred to as "a miraculous escape," "an astonishing feat for a small boat," etc. Because, during the summer season especially, numerous rumors are heard of small boats, sailed by amateurs, becoming "unmanageable," and imperiling the lives of their occupants the average non-professional has conceived a dread of the so misjudged open boat, and is reluctant to trust himself to the miniature that violently pitches to leeward of his steamer.

Of course, dreadful is the situation of a ship's crew that has taken to the boats far from land, out of the track of vessels, and without provisions, but, when comparatively close to a safe shore, or a harbor, because there must, as sailors express it, "stand a tremendous sea" that a well-handled life boat cannot ride, the chance of loss of life is smaller than might appear to a landsman.

Though everyone can understand that it is with a suspicion of hesitancy the average passenger forsakes his luxurious cabin for a seat in an open boat, in fact, while the idea of trying to do in a cockleshell what a large steamer could not accomplish seems incongruous, it should be remembered that such boats were built for this purpose, and, when handled by experienced seamen, the chance of their being "swamped" is remote.

If all steamboat passengers understood the seaworthiness of the boats ranged on either side of their vessel's upper deck the so-called "panics"often ensuing at the time of danger would greatly diminish.

Much as we hear of the decline of this country's merchant marine, the immense fleet of yachts displaying the stars and stripes that gathered in the vicinity of Sandy Hook during the recent international races eloquently testified to the nautical inclinations of wealthy Americans.

The owners of these yachts must necessarily be rich, and should anyone assert that the presence of so many pleasure craft, some of them carrying a crew of forty hands, also enables many poor Americans to go down to the sea in ships, it must be understood that only one in twenty of all the sailors shipped on board the yachts above alluded to is American born.

As nobody can conceive of the possibility of the owners and captains to be believers in the vulgar prejudice of national superiority, and as everyone is aware that a captain selects the members of his crew solely with regard to their ability and experience as seamen, it seems that America does not produce the particular brand of seafaring men required on these pleasure boats.

The contention of aggressively patriotic people that foreigners are favored on account of their greater docility cannot be accepted in this case, and until a law has been passed making it compulsory for American vessels to carry boys, or apprentices, foreigners shall certainly man the few vessels that fly stars and stripes. The time is again fast approaching when every merchant in this commercial country commences his yearly "stock taking" preparatory to replenishing it, but since her former supremacy on the seas America has neglected to take stock of her available supply of sailors, only ordering the ready-made article from abroad as the occasion demanded—Sweden being the principal importer.

Should a young American desire to "follow the sea," and learn the art of reefing, knotting and splicing, his request for a boy's berth on one of the coasting schooners will not be granted because accomplished graduates from practical foreign forecastles are occupying all the bunks. Thanks to the foresight of foreigners who passed a law compelling captains to engage in the manufacture of seamen, American ship owners are able to procure "men before the mast" at a moment's notice.

A French marine journal comments at great length on the failure of the sardine crop. The reasons given for this shortage in the catch is the cold weather France experienced this summer and the scarcity of the codfish-roe which the fishermen need for bait.

It is an ill wind, etc., and France having ever furnished this country with choice sardines it is possible that American fishermen may now find a European market should the quality of their catch compare favorably with the product of Spanish waters.

Can it be possible, however, that the reason given for the shortage of this season's catch is correct?

Even taking for granted, as the French paper claims, that a substitute for their accustomed bait cannot be found, those having read Wm. P. Smyth's' article in the consular report will doubt that codfish-roe cannot be obtained.

In this article is a description of the so-called "cod-mountains" near the Lofoden islands—shoals of fish 120 ft. in vertical thickness, and for two months these shoals keep up a continuous procession along the coast, each shoal of this kind containing at least 120,000,000 fish. Whales and lobsters are getting more scarce year by year, but codfish, like the poor, shall remain with us ever if the predictions of fishermen are accepted, and perhaps the Frenchmen's unsatisfactory hauls are the result of the sardines sharing the lobsters' fate. F. H.

GOVERNMENT AID TO SHIPPING.

Probably at no time has there been a more combined effort than at present on the part of interests naturally dissociated to obtain for American shipping a mediocum of recognition from congress. Various movements are under way, several of them springing spontaneously to the assistance of those who have labored long for the cause. The New York Board of Trade & Transportation has begun an active campaign and is compiling much data on the subject; the ship owners of the coast are also feeling the pulse of the public and have sent representatives into the western states to discover their temper. Of course the hope of legislative assistance lies in the western states. These states must be made converts. The coast states already understand the handicap under which American shipping is struggling. What is now needed is the co-operation of commercial institutions throughout the middle west. They must be brought to think about the condition of the American merchant marine. In the past they have not thought about it because it has been a subject somewhat remote to their daily lives. But a commonwealth cannot get along without an adequate merchant marine no more than it can without an adequate railway service. It seems to be useless to put a bill either into the house or senate and trust to both bodies to pass it. There has been altogether too much jugglery about it. If one passes it the other shelves it and the shipping interests are placated with the explanation that the bill was killed by circumstances. Different tactics must be adopted. It is now proposed to have congress appoint a committee to inquire into the state of American shipping and to prepare remedial measures upon the facts obtained by the inquiry. This is a business-like and sensible thing to do. It is to be hoped that something tangible may come of it.

REPORT OF NEW YORK DOCK CO.

The report of the New York Dock Co. for the fiscal year ended July 31, was made public this week. The income account showed a decrease in gross earnings compared with the previous year, of $171,877. A decrease in operating expenses of $220,328 resulted in an increase in net earnings of $48,451. The surplus, after interest charges, amounted to $402,985, an increase of $51,661, and equalling 4.03 per cent. on the $10,000,000 of preferred stock. The preferred stock is entitled to 5 per cent. before any dividend is paid on the common. President David H. King, Jr., makes this statement to the stockholders:

"During the past year a general overhauling of the property and important improvements have been made which will provide additional room for steamships and simplify the methods of handling business. The dredging has been nearly completed making it possible for vessels of the deepest draught to be accommodated at our piers. Electrical equipment for hoisting from new central stations has been added, and the use of portable engines dispensed with, thereby effecting a large saving in coal consumption, as well as reducing the danger from fire. All of the improvements commenced last year and those commenced this year have been completed, except dredging and two sheds which are now in course of construction."

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CANAL FROM FORTH TO CLYDE.

Rufus Fleming, consul at Edinburgh, contributes to the state department an article on the proposed Forth-Clyde canal. The feasibility of a ship canal between the Forth and Clyde has been for many years a subject of discussion in shipping and commercial circles in Scotland. Several routes were suggested at various times, but no definite steps have been taken toward the preparation of plans. At present the prospect of the construction of such a waterway is, however, considerably brighter. A company of London financiers is taking an active interest in the project and has adopted a scheme put forward by Messrs. D. & C. Stevenson, a prominent firm of harbor engineers at Edinburgh. Messrs. Stevenson surveyed the route some years ago from Alloa on the Forth to Arrochar on Loch Long and are now making a further survey in detail, preparing plans, etc. The consul is informed that an Edinburgh syndicate is working in conjunction with the London promoters, and that the sum of $48,665,000 has been pledged on condition that parliament shall guarantee interest on capital. The promoters are confident that parliament will aid the enterprise to this extent in view of the importance of the canal for naval purposes. In regard to the proposed deep water canal across Scotland David Alan Stevenson says:

"The east and west coasts of Scotland are now connected by two canals, namely, the Forth and Clyde, from Grangemouth, on the Forth, to Bowling, on the Clyde, and the Caledonian, constructed at national expense, between Inverness and Fort William. Both of these canals are quite inadequate to meet the present wants of shipping, as they can only accommodate vessels of a small class. The first named is mainly used by barges, while the Caledonian can only be used by vessels of about 150 ft. in length, 38 ft. beam, and 17 ft. draught. Both canals are seriously incumbered by numerous locks.

"At present all vessels bound from the east to the west coast of Britain, or vice versa, have to pass around the end of the island, through the Pentland Firth, with its rapid tide and dangerous sea, combined with deceptive currents and prevalent fogs, or 'south about' through the overcrowded English channel, so frequently the scene of disastrous collisions. It can not be doubted that a ship canal through the narrow neck of land which separates the east and west coasts of Scotland, capable of carrying the largest vessels, would not only obviate all the dangers and delays incident to the 'north about' and 'south about' routes, but would effect much saving in time, in the cost of insurance, in wear and tear of vessels and their engines, and hence in the cost of transit; it would also for strategical purposes be of the greatest importance.

"In designing such a canal the first points to be settled were. What are the essential requisites? These may be stated as follows:

"1. That it should be of such dimensions as to admit ships of the largest class of merchantmen, and also vessels of the royal navy, passing freely and with perfect safety from sea to sea, practically at all times of tide.

"2. That it should be as free as possible from locks, hydraulic lifts, or other mechanical appliances, involving possible delay or risk to ships using it.

"Having assumed these, as I think, indispensable conditions, the next question for solution was: Can a route be formed from the German ocean to the Atlantic which fulfills them, and also can the canal be formed at a cost which will prove remunerative?

"After careful study of the country and the levels, the conclusion was arrived at that a route along the valley of the Forth gives the only practical solution of the problem. There is, as is well known, a tract of country extending from Alloa, on the Forth, westward along the valley of the Forth to within about 10 miles of Loch Lomond, where the surface of the ground is only from 30 to 50 ft. above mean sea level and the stratum is an alluvial deposit. Between this and Loch Lomond the ground rises rapidly and attains a maximum height of 236 ft. above mean sea level and dips again to the south end of Loch Lomond, the surface of which is only 22 ft. above mean sea level. The distance across this higher ground, from the 50-ft. contour on the one side to the 50-ft. contour on the other, is about 8 miles, 1¾ miles of it being above the 200-ft. line.

"Loch Lomond (which has ample depth for vessels of the largest draught) is to be utilized as canal toward the north end of the loch to Tarbet, and thence across to Loch Long there is only a distance of 1¾ miles, the ground attaining a maximum height of 130 ft. above the mean sea level. Loch Long is practically the Atlantic ocean, and the navigation of it is safe and the water of ample depth. This, then, is the route proposed by my firm, and the surface of Loch Lomond, which as I have said is only 22 ft. above the mean level of the sea, is the proposed summit level of the canal, and having a water area of 21,000 acres and ample gathering ground—290 square miles—it would form an inexhaustible reservoir for supplying the locks with water. Only two locks at either end, at Alloa and Loch Long, would be required, as the level of the canal is only 13 ft. and 17 ft. above high-water level at these places, respectively. The exact route to be chosen will, of course, depend upon more minute inquiry than has yet been made.

"The eastern approach to the canal, which will be tidal, will be formed by deepening the Forth or making a cut inland, with a depth of 25 ft. at low-water spring tides, from opposite Grangemouth to the locks which it is proposed should be placed about 2 miles above Alloa. This will give a depth of 43 ft. at high-water spring and 38 ft. at neap tides. The distance from Grangemouth to Alloa is 6 miles. From Alloa the canal will pass to the north of the links of Forth and to the northward of the town of Stirling, then along the valley of the Forth to Gartmore and enter Loch Lomond near the mouth of the Endrick, a distance of 29 miles.

"Near the Loch Lomond end there are 5 miles of high ground, which, according to the geological survey, is the old red-sandstone formation. This part of the work will be open cutting. The distance from the junction of the loch and canal to Tarbet is 14 miles, and across the neck of land to Loch Long 1¾ miles. Loch Long is 15 miles in length to its junction with the Firth of Clyde. The total distance from Grangemouth to the Firth of Clyde is 65¾ miles.

"Regarding the dimensions of the canal, it is essential to its success that it be made on a large scale and free from locks, excepting at the seaward extremities. As the level of the water of the canal will be only about 13 ft. above high water, one lock will be sufficient at high water, but two may be necessary at other times of tide. It is proposed to make the canal throughout with a depth of 30 ft., with a width at the bottom the same as the Suez canal—namely, 72 ft.—and side slopes varying with the nature of the materials. The locks will be capable of passing the largest vessels afloat, or about 600 ft. in length and 80 ft. in width, with smaller locks alongside for smaller vessels.

"It would have been desirable to have proposed a canal of sufficient width to allow two of the largest vessels to pass each other at any place on the route; but in roughly estimating the cost it was found that this would involve so large an expenditure as to make it doubtful whether such work would, in the meantime, prove remunerative. Frequent passing places, however, will be made at suitable intervals.

"There are no very serious difficulties to be overcome, though the cutting is no doubt a heavy one. There are few railways or road crossings of any importance, and the excavations are largely in soft material and the disposal of the excavations could be easily and cheaply effected, owing to the proximity to the canal banks of waste ground.

"A ship canal of these dimensions would not only accommodate merchant vessels, but would prove of the greatest advantage to the navy, as the largest ships of war at present in existence could pass through from the one coast to the other in about eight hours, and thus the facility for defending the coast in time of war would be very much increased.

"It is believed that the route suggested through the Forth valley would prove the most satisfactory for a ship canal. Both approaches are in smooth water and free from every danger to navigation. The western outlet into Loch Long is exceedingly favorable, as ships of the largest class could at once proceed to sea quite free from the interruption and liability to grounding which they would meet with had the canal debouched into the River Clyde. The entrances to the Forth and Clyde are now so well marked by lighthouses and fog signals that vessels of any burden can run for these waters with the most perfect confidence.

"When considering the best route for the canal after vessels enter Loch Lomond, two other routes were feasible besides that already described:

"1. Across Loch Lomond to the opposite shore near Arden and then by a cut about 4 miles in length, partly open and partly in tunnel, to the Clyde to the northward of Ardmore Head.

"2. Along Loch Lomond to its southern end and through the vale of Leven to the Clyde at Dumbarton.

"The relative merits of the different routes from Loch Lomond to the sea, so far as distance is concerned, are as follows: Tarbet route (Endrick to mouth of Loch Long), 28 miles; Arden route, 14 miles; Dumbarton route, 20½ miles.

"The Arden route is therefore the shortest, but it would be the most expensive, owing to a length of tunnel of 1¾ miles, which could not be overcome by open cutting, as it passes under land about 300 feet in height. The Dumbarton route is shorter than the Tarbet route by about 7½ miles, but as the Dumbarton route involves 5 miles additional canal, where vessels could only go about 5 miles an hour, and 6 miles of the Clyde, where the speed will probably be restricted to about 8 miles an hour, the time occupied by the journey either way will be about the same. In steaming up Loch Lomond and also down Loch Long vessels may go at full speed, and there would be no interruption from river traffic.

"The cost of the undertaking can not be more than approximately estimated without particular investigation as to the nature of the strata in the line of the canal; but my firm estimate the cost of the Tarbet route, with their present knowledge derived from the ordnance and geological surveys, and including interest during construction, at $48,665,000. The cost of management and maintenance my firm estimate at $291,990.

"The saving in distance that would be effected may be stated thus: 1. From the Clyde to ports on the east coast of Scotland, northeast of England, and northwest of Europe the distance saved would be from 529 miles to 238 miles, in the majority of cases the distance being much more than halved.

"2. From the Forth to ports on the west coast of Scotland, northwest of England, Ireland, America, and the Mediterranean the distance saved would be from 487 to 141 miles; in all cases,

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except the American and Mediterranean route, the distance being more than halved.

"3. Tyne ports to the St. Lawrence river, the distance saved would be 150 miles.

"4. West of Britain and northeast of Ireland to middle western ports of the Continent, the distance saved would be from 377 to 98 miles."

The canal will affect an enormous tonnage, estimated by the sanguine engineers at 9,500,000 tons per annum. At an average rate per ship and cargo of 36 cents per ton, this would yield a revenue of about $3,406,550.

IRON AND STEEL IN FOREIGN TRADE.

The anticipated change in the movements of iron and steel in the foreign trade of the United States did not make itself apparent in the August record as was expected by students of this subject. The figures of the August imports and exports of iron and steel just presented by the department of commerce and labor, through its bureau of statistics, show that the imports of iron and steel in August, 1903, were $3,440,100 in value, against $3,529,676 in the preceding month—July—and against $4,123,314 in August of last year. Thus the falling off of imports of iron and steel in August, compared with the preceding month, amounted to less than $100,000, and compared with August of last year amounted to $683,214. Practically all of the reduction occurs in ingots, blooms, slabs, billets, and bars of steel, and tin plates. The quantity of ingots, blooms, slabs, billets, and bars of steel, and steel in forms not otherwise specified, imported in the month of August, 1903, was 45,650,655 lbs., against 74,076,956 lbs. in July, 1903, and 87,420,104 lbs. in August, 1902. In tin plate the importation of August, 1903, was 6,977,012 lbs. against 11,598,703 lbs. in July, 1903, and 6,287,106 lbs. in August, 1902. While the reduction in these two items shown in pounds seems large, the actual reduction, as already shown, is less than $100,000, as compared with the preceding month of the present year, while for the eight months ending with August the total value was $32,289,525, against $23,456,760 in the corresponding eight months of last year, and $12,210,382 in the corresponding eight months of the preceding year, 1901.

The following table shows the total value of iron and steel imports in the eight months ending with August:

Value of iron and steel, and manufactures thereof (exclusive of iron ore), imported into the United States.

Eight months ending August.	Value.
1898	$ 8,759,226
1899	9,388,862
1900	14,722,696
1901	12,210,382
1902	23,456,760
1903	32,289,525

On the export side the figures of iron and steel for the month of August show little change compared with the preceding month, or corresponding months of the preceding year. The total exports of iron and steel for the month are $8,363,443, against $8,641,525 in August of last year, while the total exports of iron and steel during the eight months ending with August, 1903, are $65,466,934 in value, against $65,904,829 in the corresponding months of last year.

The following table shows the quantity of the principal articles of iron and steel imported in August, 1903, compared with August, 1902:

Articles.	Aug. 1902.	Aug. 1903.
Iron ore, tons	113,788	153,430
Pig iron, tons	79,447	40,475
Scrap iron, tons	13,759	5,664
Bar iron, lbs.	5,635,272	7,843,068
Bars, railway, of iron or steel, tons	1,988	9,347
Hoop, band, or scroll iron, lbs.	697,665	1,120,121
Ingots, blooms, slabs, billets, and bars of steel, lbs.	87,420,104	45,650,655
Sheet, plate, and tagger's iron, lbs.	817,613	2,688,127
Tin plates, terne plates, etc., lbs.	6,287,106	6,977,012
Wire rods, lbs.	3,726,170	4,230,145
Wire, and manufactures thereof, lbs.	520,825	859,641

In an advertisement elsewhere in this issue James Pryor, Houghton, Mich., offers for sale two complete dredging plants, consisting of two dredges and the tugs Maytham and Duncan Robertson with five dump scows and two flats; also sundry duplicate parts of machinery, extra spud anchors and dipper teeth, etc. The plants are in good working condition, comparatively new, and could be delivered at once on satisfactory sale.

At the request of several senators and representatives the department of commerce and labor has begun the preparation of tables showing the effect of foreign subsidies upon the merchant marine of the world. It is the intention to use the tables in the contest at the coming session of congress for the shipping bill.

Hunters' Special Rates.—Via Nickel Plate road to points in northern Michigan and Wisconsin. Tickets on sale Sept. 15 to Nov. 15, '03, inclusive. Liberal return limit. See nearest agent for particulars or address E. A. Akers, C. P. & T. A, Cleveland, Ohio. Oct. 23 (173).

Denver-Colorado Springs-Pueblo, Col.—Low excursion rates via Nickel Plate Road, Oct. 3 and 4. Tickets good to return to Oct. 30, '03. Get particulars from nearest agent or address E. A. Akers, C. P. & T. A., Cleveland, O. Oct. 1 165

BELLEVILLE WATER-TUBE BOILERS

NOW IN USE (FEBRUARY, 1903)

On Board Sea-going Vessels, NOT INCLUDING New Installations Building or Erecting.

French Navy	276,460 H. P.
English Royal Navy	849,300 "
Russian Imperial Navy	193,900 "
Japanese Imperial Navy	122,700 "
Austrian Imperial Navy	32,900 "
Italian Royal Navy	13,500 "
Chilian Navy	26,500 "
Argentine Navy	13,000 "
The "Messageries Maritimes" Company	87,600 "
Chemins de fer de l'Ouest: (The French Western Railway Co.) Steamships plying between Dieppe and Newhaven	18,500 "
Total Horse Power of Boilers in Use	1,634,360

Societé Anonyme de Etablissements Delaunay Belleville

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Works and Dock Yards of the Ermitage at Saint-Denis (Seine), France. Telegraphic Address: Belleville, Saint-Denis Sur-Seine

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APPLIES ALSO TO MARINE BOILERS.

It's surprising to note that some of our railroads in these days of high boiler pressure will persist in the criminal practice of plugging up the holes in drilled stay bolts that have been broken in service, rather than make immediate repairs. This is generally put off until the boiler is washed out, which may mean several weeks or a month, according to the water used. Not only is such work criminal, but it destroys the object for which the drilled bolt was adopted. Experience has taught that it is impossible, even with an expert, to locate broken bolts at all times, and it is due to this that the drilled bolt has been adopted. At best it is only a makeshift. The drilling is generally done by inexperienced labor and a large percentage of the holes are found away from the center of the bolt, which naturally weakens it. If it is done by the piecework system and no inspector around, cases have been found where the hole did not penetrate the thickness of the boiler shell. Adopting rules and furnishing special charts for the guidance of those whose duty it is to watch the broken bolts is a waste of time and money unless the rule is rigidly enforced. We are not quoting from hearsay, but are giving facts as we found them. On one road we counted thirty-six broken bolts on a Mogul that had not seen a year's service. Wire nails and file points were used. The engineer claimed that he reported them and that the boiler-maker had used the file ends in the absence of wire nails, the nails he had put in himself, taking his lesson from the boiler-maker who made repairs in that way. The master mechanic said these engines always came in at night and got out again before morning, so that the work could not be done, as he had no night force to do this work. With the hollow bolt plugging is out of the question. If a plug is inserted from the outside, to prevent the annoying escape of steam and water, it simply drives it into the fire box, which means death to the fire. We do not believe that the parties guilty of these practices do so with any criminal intent, but it behooves the management to watch this more closely. Life and property is at stake, and certainly the crews that man these engines are due every consideration. This practice of having boiler insurance companies that make a specialty of this sort of risk do this work is a commendable one.

When the inevitable explosion happens to boilers whose broken stay bolts have given due and timely warning that was disregarded, men will hold up their hands and say that the cause of the accident was a mystery. Then others interested in having the owners of the locomotive escape the penalty of the reckless practice of plugging leaky stay bolts will look wise and say that the accident was due to low water, and the engineer who was in charge having ended his life with the explosion, no one can for a certainty defend his professional character, and so he is blamed for carelessness, and the company escapes paying heavy damages.—J. A. B. in Railway and Locomotive Engineering.

AMERICAN SOCIETY OF NAVAL ENGINEERS.

The annual meeting of the American Society of Naval Engineers will be held at the navy department on Saturday, Dec. 26. There is more than usual interest in the result of the forthcoming election of officers. The nominees for the places are as follows:

For president—Rear Admiral John D. Ford, U. S. navy, retired; Com'dr Warner B. Bayley, United States navy; Com'dr John K. Barton, United States navy.

For secretary-treasurer—Lieut. Milton E. Reed, United States navy; Assistant Engineer Robert E. Carney, United States navy, retired.

For members of council—Capt. George W. Baird, United States navy; Com'dr Alfred B. Canagan, United States navy; Lieut. Com'dr F. J. Schell, United States navy; Lieut. Com'dr DeWitt C. Redgrave, United States navy; Lieut. Com'dr Emile Theiss, United States navy; Lieut. Horace W. Jones, United States navy; Lieut. Henry V. Butler, United States navy; Lieut. Henry C. Dinger, United States navy; Naval Constructor Henry G. Smith, United States navy.

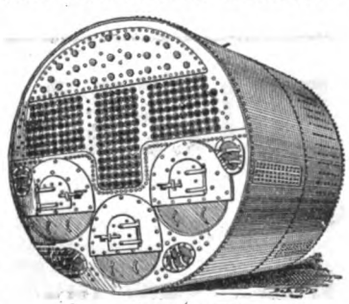
The fire tug Abram S. Hewitt, constructed for New York city, was given a dock trial at the New York Ship Building Co.'s yard, Camden, N. J., Saturday, and fulfilled every test.

Sealed proposals will be received at the office of the Lighthouse Board, Washington, D. C., until 2 o'clock p. m., November 3, 1903, and then opened, for furnishing the materials and labor of all kinds necessary for the construction and delivery of five first-class steel steam light-vessels, Nos. 78, 79, 80, 81 and 83, for a fixed sum for each vessel. Bids will be received for: one or two vessels delivered at the General Lighthouse Depot, Tompkinsville, N. Y.; one or two vessels delivered at the Lighthouse Depot, Edgemore, Del.; one or two vessels delivered in the harbor of Baltimore, Md.; one vessel delivered in the harbor of New Orleans, La.; one or two vessels delivered in the harbor of San Francisco, Cal.; one or two vessels delivered at the Lighthouse Depot, Astoria, Ore. Blank forms of proposal, specifications and other information may be had upon application to the office of the Lighthouse Board. C. T. Hutchins, U. S. N., Naval Secretary. Oct. 8

Tug Wanted.

Wanted a strongly built fishing tug from 45 to 60 ft. long, with a reliable gasoline engine. Reply to M. Alpern, Alpena, Mich. Oct. 8

Northwestern Steam Boiler & Mfg. Co.



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E. KRIZ, Superintendent, 557 M.

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UNION BONNET — GLOBE, ANGLE, CROSS, AND CHECK — REGRINDING

For 175 lbs. steam working pressure tested to 250 lbs. hydraulic. Can be reground without detaching from pipe. Can be packed when valve is open. Are extensively used on steam vessels where a perfectly reliable valve is required.

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BIG POWER IN STEAM TURBINES.

An order for three steam turbines of the largest size has recently been placed with the Westinghouse Machine Co., East Pittsburg, Pa., by Westinghouse, Church, Kerr & Co., acting as engineers and constructors for the Pennsylvania Railroad in connection with the New York terminal equipment. These machines will form the initial installation in the new Long Island power house, on which construction is just beginning and which will serve the traction in the tunnels for the Hudson and East Rivers and the New York terminal at Thirty-Second street and Seventh avenue, and also such part of the Long Island railroad system as is in process of conversion to electric traction.

The turbines will be of the Westinghouse horizontal short-barrelled type mounted upon a single bedplate, resulting in a particularly compact arrangement and great economy of floor space. They will have a capacity of approximately 7,400 electrical horse power each and will drive 5,500 kilowatt, three-phase, alternating current generators operating in parallel. Their overload capacity will be over 11,000 H. P. and each turbine will be provided with a bypass automatically controlled by the governor to accommodate abnormal fluctuations in load. This will also permit operation at full load non-condensing. The turbine equipment will operate under conditions favorable to the attainment of high economy, namely, 200 lbs. steam pressure at the throttle, 28° in vacuum and 175° F. superheat.

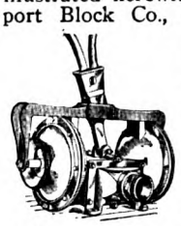
The generator will be direct connected to the turbine shaft through a flexible coupling, each section of the unit having two bearings of ample proportion, thus avoiding shaft stresses. The three-phase winding will deliver current directly to the distribution system at 11,000 volt, no step-up transformers being employed. The machines will be separately excited and will carry full load continuously at 100 per cent. to 80 per cent. power factor, with a rise in temperature of 35° C., or 50 per cent. overload for 2 hours, with an increase in temperature rise of slightly over 50 per cent. Each turbo unit will thus be capable of delivering 8,250 K. W. for reasonable intervals and considerably in excess of this figure during momentary load fluctuations.

The entire equipment will be delivered by July, 1904, one year from the date of contract. It is somewhat significant of the state of the turbine industry that eleven Westinghouse turbines of approximately the same size are under construction for heavy electric railway service, both in this country and abroad.

Fifty-ton cars are common enough in this country but English journals believe that French engineers are going rather fast in endeavoring to introduce them into France. It is represented that there is very little trade in France to which they are adapted. Twenty-ton cars, or wagons as they are strangely called in that country, seem quite enough for English conditions. The common car in England is a 10-ton car.

DOUBLE-ACTION PUMP.

The double-action star diaphragm pump for hose connection illustrated herewith is being introduced by the Boston & Lockport Block Co., 160 Commercial street, Boston. Advantages claimed for it are: First, its great capacity, being 2 gallons of water per stroke, and the fact that it will deliver a continuous 3-in. stream; second, its lightness and the ease with which it can be transported, its weight being only 163 lbs.; third, it can be used as a suction pump or as a suction and force pump; fourth, the construction of the valves is such that they will not clog with either sand, gravel or mud; fifth, the pump having a double action, the water is kept continually in motion and the extra power used in stopping and starting the flow is thus saved; sixth, it can be placed anywhere on the work and the water can be carried up over a bank, wall or any other obstruction, after leaving the pump; seventh, as the inlet and outlet connections are made with hose couplings, the pump can be placed anywhere inside a building and the water discharged into the street or sewer, without any leakage or moisture at the pump.



The pump is frictionless and non-chokable and is especially suited to the uses of sewer builders, foundation and bridge builders, sanitary works, waterworks, etc.

The Republic Rubber Co., Youngstown, O., has issued a circular entitled "A Talk on Packing." The circular describes the merits of searchlight packing. The color of the packing is pure white, with a soft velvety finish, and it will conform readily to the roughness of any irregular flange surface. Searchlight requires, according to the circular, no metal or wire insertion to make a tight joint; it will not vulcanize; full steam pressure can be turned on immediately. The manufacturers also claim for it that it will retain all its life and elasticity while being subjected to any degree of heat. The higher the pressure the greater the resistance. It undergoes 500° of heat while in process of manufacture, a higher temperature than it will be called upon to resist in actual service.

Package Freight Steamers for Sale.

For Sale.—Steamers JOHN C GAULT and RUSSELL SAGE; 1,200 tons capacity; *complete fit out for package freight.* Inland Lloyds rating, A2. Compound engines and two marine boilers in each boat; in fair condition. For particulars address A. W. Colton, Toledo, O. Oct 29

Dredging Plants for Sale.

For Sale.—Two dredging plants complete, consisting of two dredges, tugs Maytham and Duncan Robertson; also five dump scows and two flats, with sundry duplicate parts of machinery, etc.; also extra spud anchors and dipper teeth, etc.; all having been kept up in good working condition and comparatively new, and could be delivered at once on satisfactory sale. For further information as to capacity and prices of each plant inquire of James Pryor, Houghton, Mich. Oct. 1

Wanted to Buy.

Two large flat scows in first-class condition. Hugo & Tims, Duluth, Minn. Oct. 1

$5,000 Buys Steamer Inter Ocean

Length 214 ft., beam 36 ft. Capacity 1600 tons. Steeple-compound engine Boiler allowed 110 lbs. steam. Address C. S. Mahoney, 17 Main St., Buffalo, N. Y. tf

Schooner for Sale.

For Sale—Schooner Howlett, 127 ft. long, 29 ft. beam; carries 200,000 ft. of lumber. Outfit nearly all new. Boat in good condition Enquire McCracken Bros., Muskegon, Mich Oct. 15

Tug for Sale.

Tug Warwick—Engine 15x17. Boiler allowed 110 lbs. steam. Both in first-condition. Hull practically new. Boat inspected and ready to run. Cheap for cash. Can be seen at Toledo, O. Apply to James Rooney, 1118 Collingwood ave , Toledo, O. t f

Boiler For Sale.

For sale cheap. Scotch marine boiler 10 ft. by 78 in triple riveted, 5/8 steel plate, dome 6 ft by 24 in , 98 three inch tubes, stays 5/8 center; allowed 168 lbs steam pressure. Boiler is now working and is as good as new. Address I. Applebaum, Detroit, Mich. tf

Small Steam Barge for Sale.

I have for sale a small steam barge Carries 250 tons. Address, Capt F. E. Wood, Alexandria Bay, N. Y. tf

Steamer and Tow Barge for Sale.

Lake steamer and tow for sale. Total tonnage 1,000 Equipment complete A-1 condition. Address, G. M., care Marine Review Pub. Co., 39-41 Wade Bldg., Cleveland, O. Oct. 15

Steam Yacht Wanted.

Wanted—A steam yacht about 75 ft. long, 18 ft. beam, drawing not over 8 ft. when loaded; steel hull preferred To be of a height to pass under bridges with 17 ft. head room. Speed to be not less than twelve miles an hour To have a carrying capacity of seventy-five (75) persons without crowding. To have good kitchen accommodations. The entire mechanical equipment and all of the appointments of the boat to be first class. Send description of boat and machinery, photographs and terms to Thomas J. Webb, 117-121 W. Randolph street, Chicago. Oct. 1

Wanted Situation as Oiler.

Position wanted as oiler on lake vessel by party who is willing to work and anxious to get engineer's papers. Has had eight years' experience as stationary engineer. At present superintendent of a large steam plant. Can produce best of recommendations Address Box 50, Marine Review Pub. Co., Cleveland. Oct. 8

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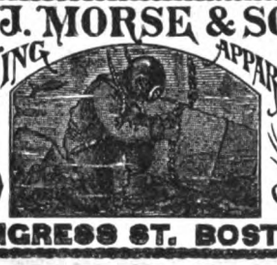
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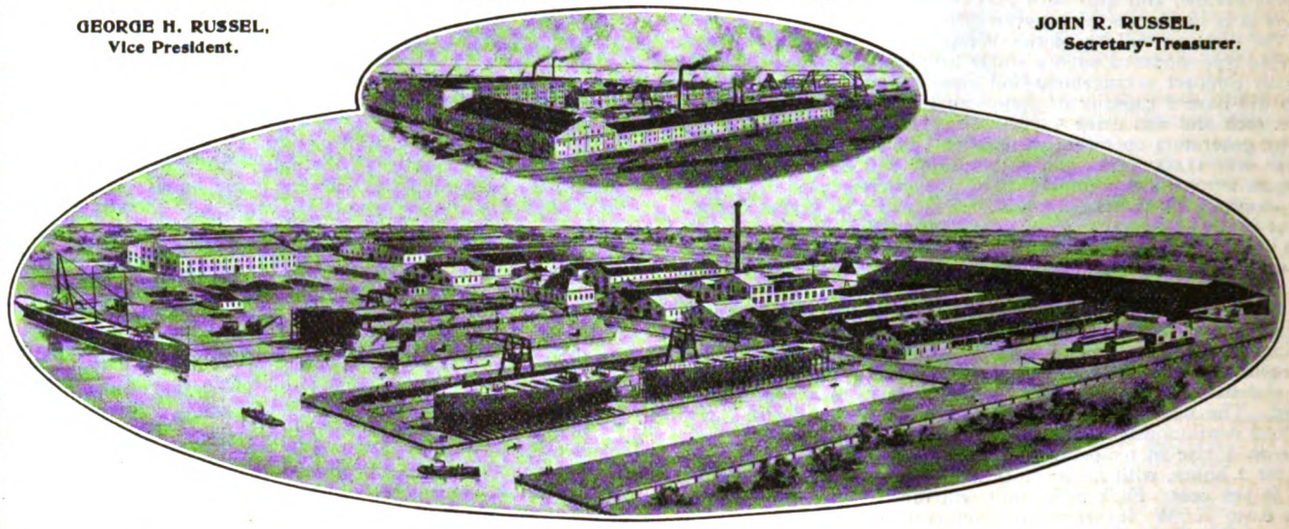

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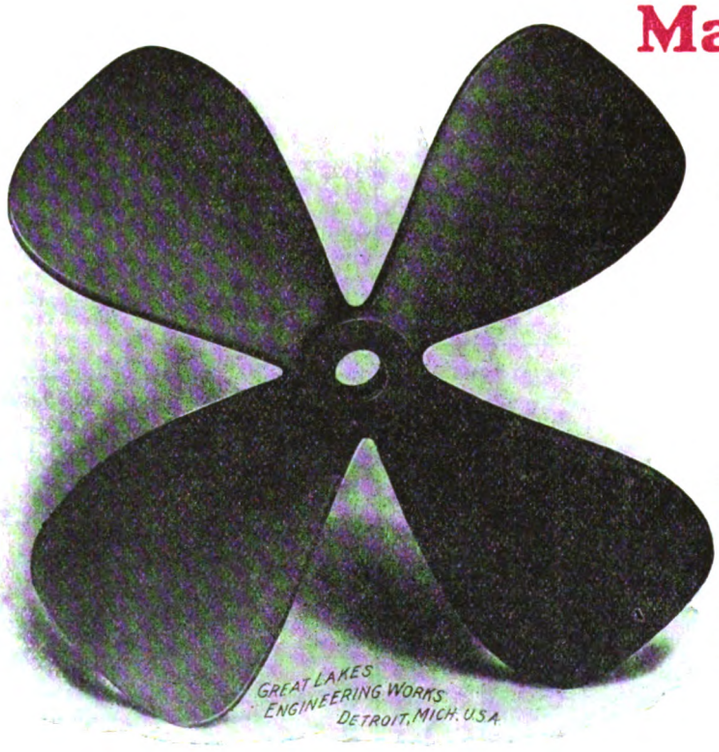

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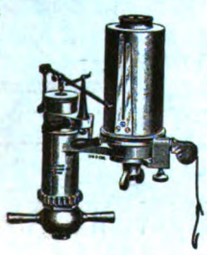

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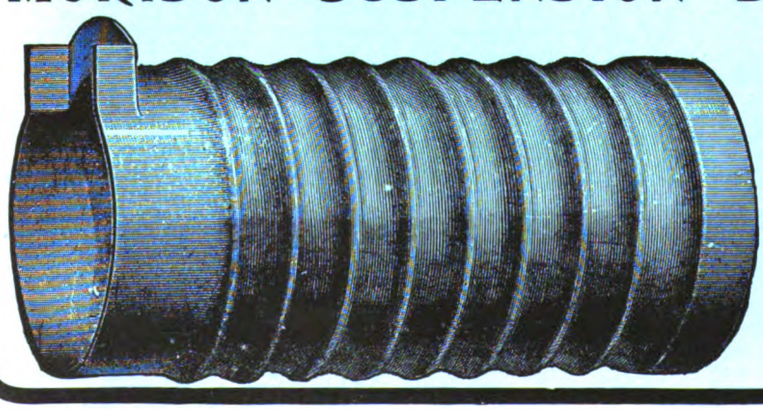

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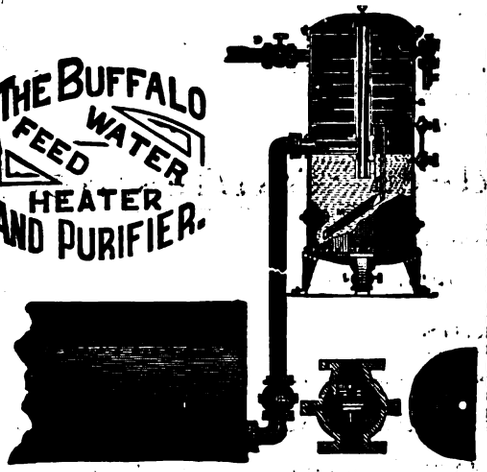

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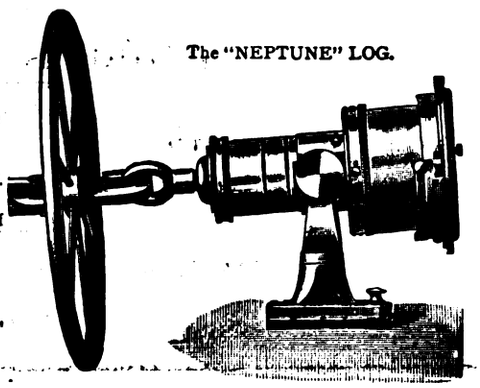

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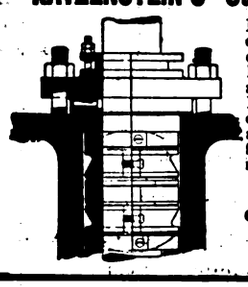

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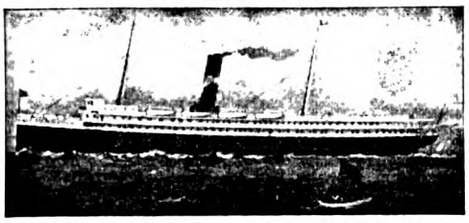

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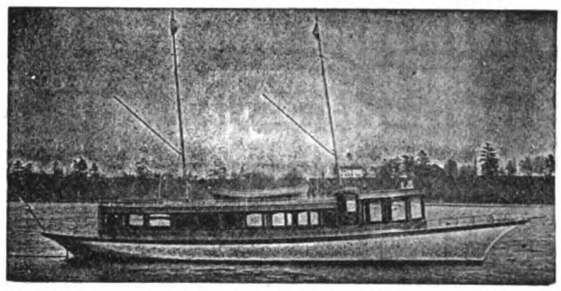

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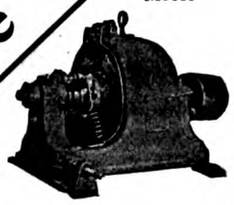

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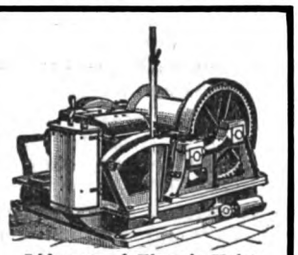

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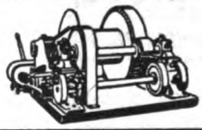

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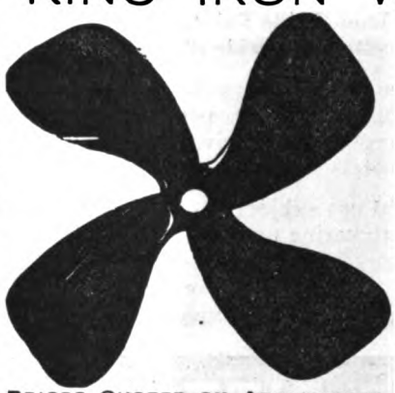

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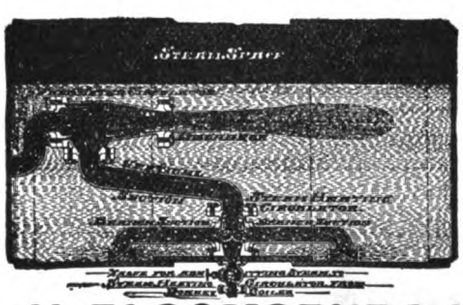

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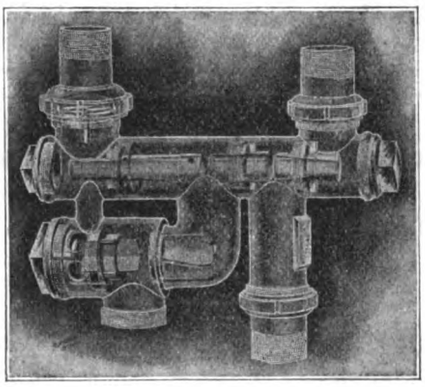

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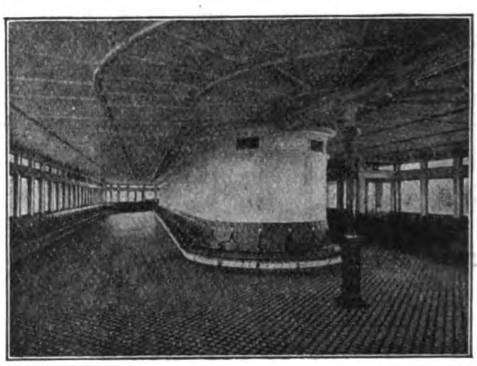

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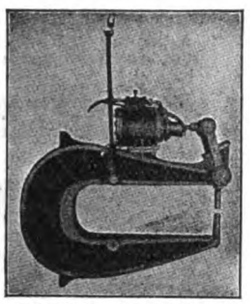

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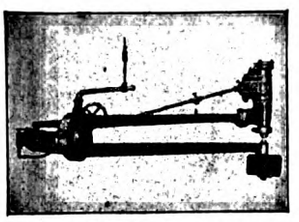

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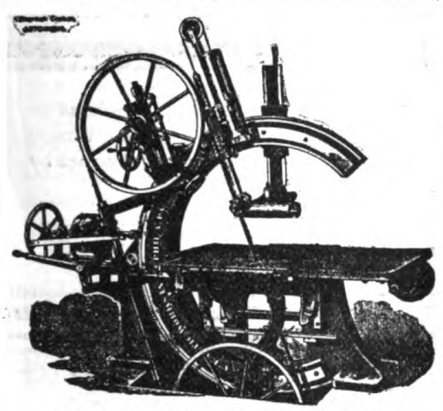

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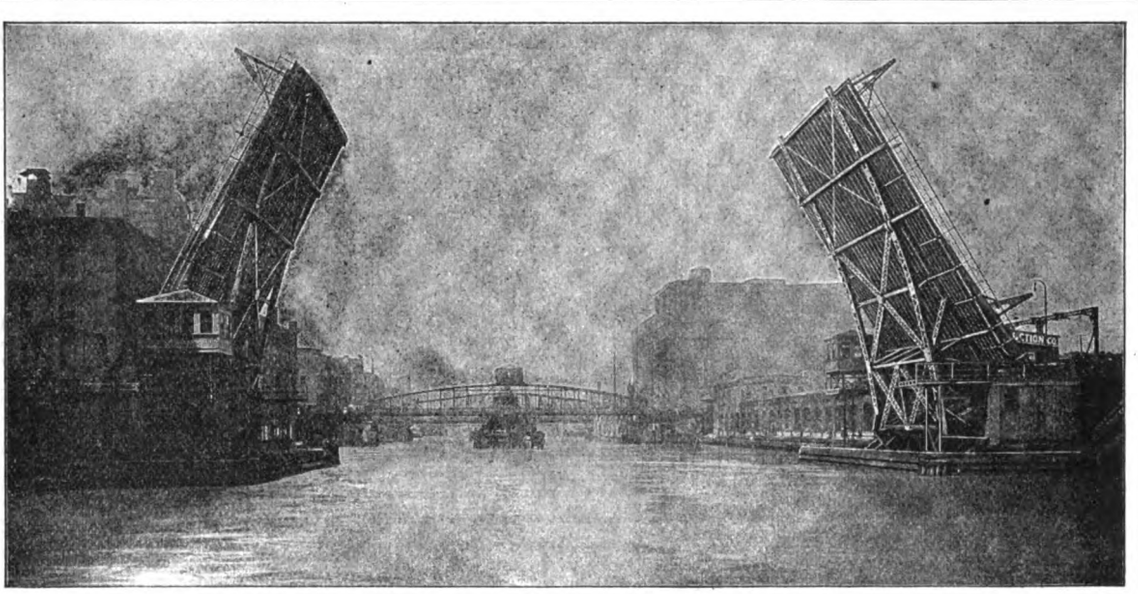

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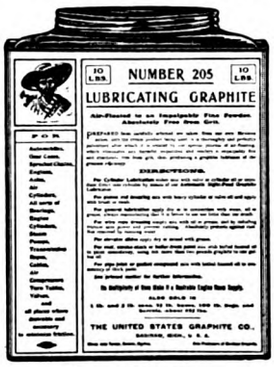

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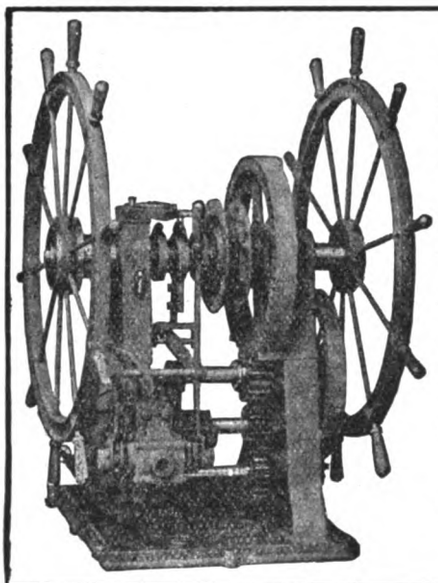

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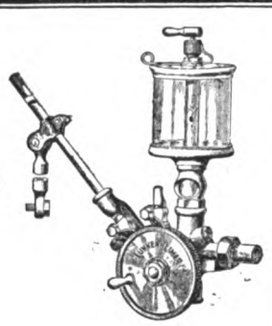

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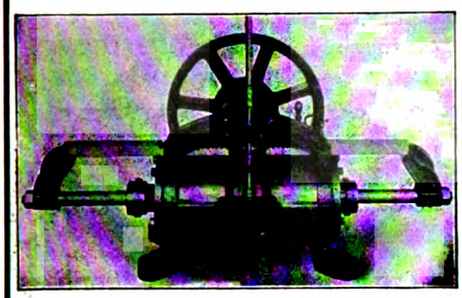

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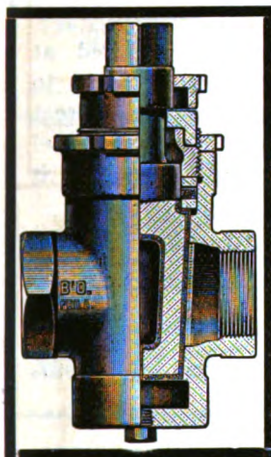

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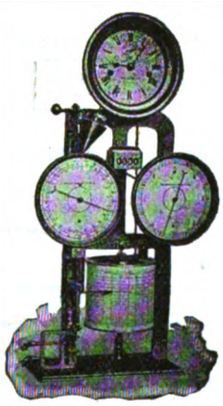

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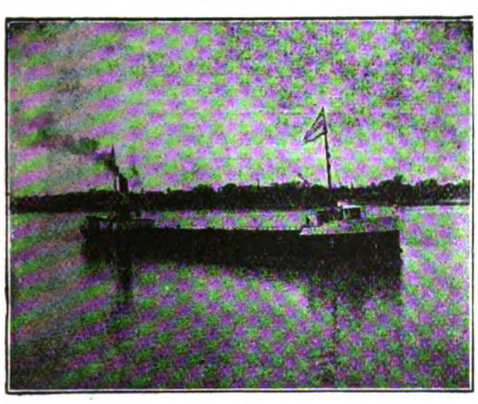

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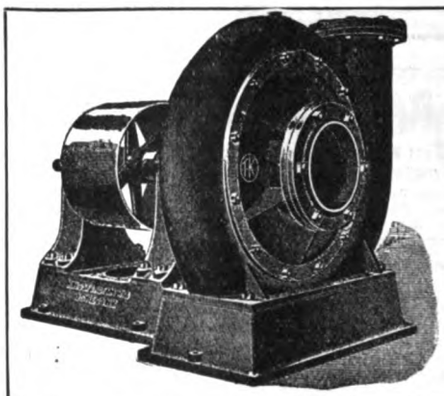

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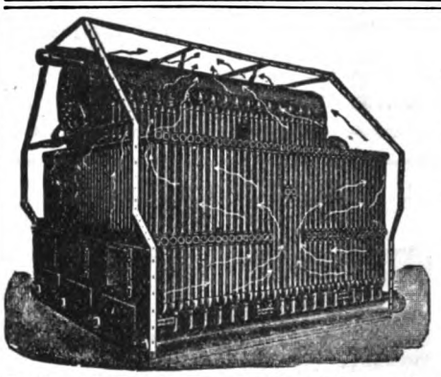

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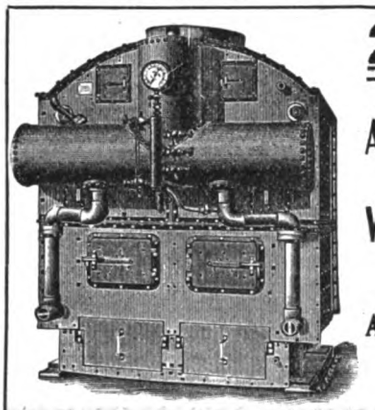

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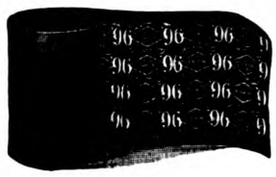

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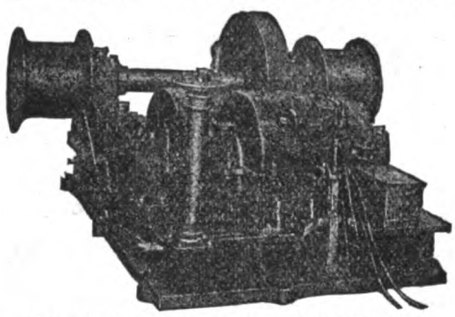

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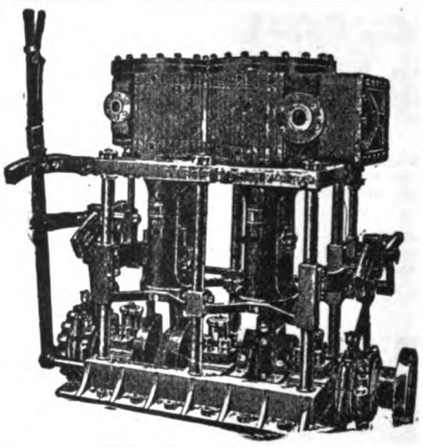

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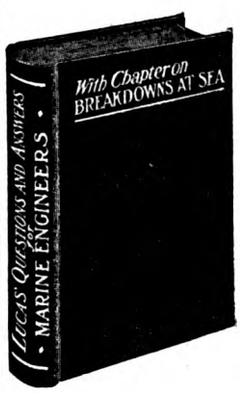

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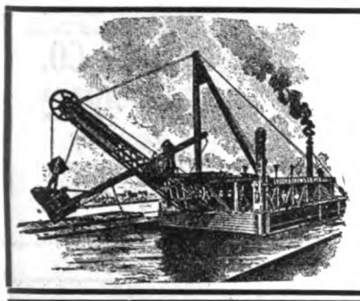

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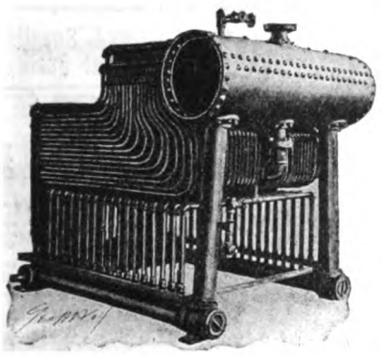

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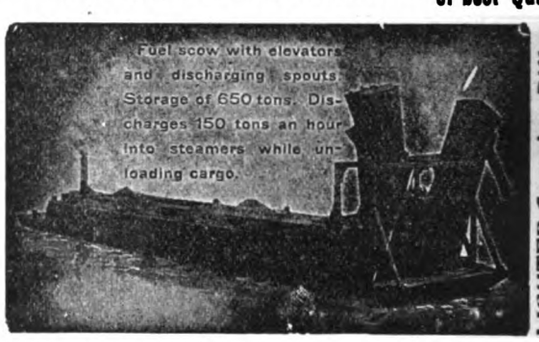
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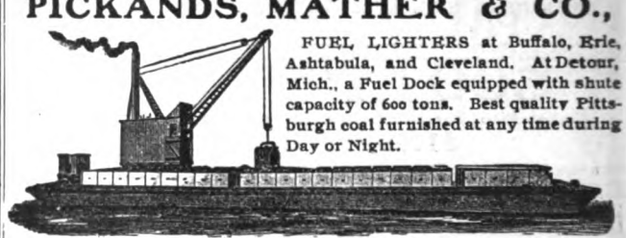

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Lackawanna Ore Docks—unloading ore.
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Unloading Ore from Whaleback, two views.
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Illinois Steel Works and Harbor Entrance, South Chicago.

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Globe Iron Works Ship Yard, Laying Keel of No. 400.

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General View of Locks from Offices.
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Poe Lock, from below, open.
Poe Lock, from above.
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Weitzel Lock, from below.
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Upper Entrance to Lock Canal.
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PAINTS.

Baker, Howard H. & Co.....Buffalo.
Detroit Varnish Co. ..... Detroit.
Detroit White Lead Works ..... Detroit.
Mohawk Paint & Chemical Co.....Norwich, Conn.
New Jersey Zinc Co. ..... New York.
Sipe & Co., James B. ..... Allegheny, Pa.
United States Graphite Co..... .....Saginaw, Mich.
Upson-Walton Co. .....Cleveland.

PATENT ATTORNEYS.

Thurston & Bates .....Cleveland.

PATTERN SHOP MACHINERY.

Atlantic Works, Inc. .....Philadelphia.

PIPE—BRASS AND COPPER, IRON PIPE SIZE.

Waterbury Brass Co. .....New York.

PIPE-JOINT COMPOUND.

United States Graphite Co ..... Saginaw, Mich.

PIPE, WROUGHT IRON.

Bourne-Fuller Co. .....Cleveland.
Crane Co. .....Chicago.
Macbeth Iron Co.....Cleveland.

PLANING MILL MACHINERY.

Atlantic Works, Inc. .....Philadelphia.

PLATES—SHIP, STRUCTURAL, ETC.

Bourne-Fuller Co..... Cleveland.

PLUMBING, MARINE.

Reilly Repair & Supply Co., James....New York.
Sands, Alfred B. & Son.....New York.

PNEUMATIC TOOLS.

Allen, John F. .....New York.
Chicago Pneumatic Tool Co. .....Chicago.

POLISH FOR METALS.

Bertram's Oil Polish Co.....Boston.

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BUYERS' DIRECTORY OF THE MARINE TRADE.—Continued.

POWER DOORS AND HATCHES.
"Long-Arm" System Co.....Cleveland.

PRESSURE REGULATORS.
Kieley & Mueller .....New York.
Ross Valve Co. .....Troy, N. Y.

PROPELLER WHEELS.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Bath Iron Works, Ltd.....Bath, Me.
Cramp, Wm. & Sons.....Philadelphia.
Crescent Ship Yard Co.....Elizabethport, N. J.
Detroit Ship Building Co.....Detroit.
Fore River Ship & Engine Co.....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Hyde Windlass Co. .....Bath, Me.
Jenks Ship Building Co.....Port Huron, Mich.
Lockwood Mfg. Co.....East Boston, Mass.
Macbeth Iron Co.....Cleveland.
Maryland Steel Co.....Sparrow's Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Moran Bros. Co.....Seattle, Wash.
Neafie & Levy Ship & Engine Building Co....Phila.
Newport News Ship Building Co Newport News, Va.
Phosphor Bronze Smelting Co., Ltd. ..Philadelphia.
Risdon Iron Works.....San Francisco.
Roelker, H. B. .....New York.
Sheriffs Mfg. Co. .....Milwaukee.
Superior Shipbuilding Co .....Superior, Wis.
Thropp & Sons Co., J. E. .....Trenton, N. J.
Trout, H. G. .....Buffalo.
United States Ship Building Co.....New York.

PROJECTORS, ELECTRIC.
Elwell-Parker Electric Co.....Cleveland.
General Electric Co.....Schenectady, N. Y.
Westinghouse Electric & Mfg. Co....Pittsburg, Pa.

PUMPS FOR VARIOUS PURPOSES.
Blake, Geo. F., Mfg. Co.....New York.
Great Lakes Engineering Works.....Detroit.
Kingsford Foundry & Machine Wks. Oswego, N. Y.
"Long-Arm" System Co.....Cleveland.

PUNCHES, RIVETERS, SHEARS.
Allen, John F.....New York.
Chicago Pneumatic Tool Co. .....Chicago.

REFRIGERATING APPARATUS.
Roelker, H. B. .....New York.

REGISTER FOR CLASSIFICATION OF VESSELS.
Great Lakes Register .....Cleveland
Record of American & Foreign Shipping.New York.

RELEASING HOOKS FOR DETACHING BOATS.
Standard Automatic Releasing Hook Co. New York.

RIVETING MACHINES.
Allen, John F .....New York.
Chicago Pneumatic Tool Co. .....Chicago.

RIVETS, STEEL, FOR SHIPS AND BOILERS.
Bourne-Fuller Co. .....Cleveland.

RANGES.
Russell & Watson .....Buffalo.

RIVETS—BRASS AND COPPER.
Waterbury Brass Co. .....New York.

SAFETY VALVES.
American Steam Gauge Co. .....Boston.
Ashton Valve Co. .....Boston.
Crane Co .....Chicago.
Hayden Mfg. Co., N. L. .....Columbus, O.
Lunkenheimer Co.....Cincinnati.

SAIL MAKERS.
Baker, Howard H. & Co. .....Buffalo.
Upson-Walton Co. .....Cleveland.
Wilson & Silsby .....Boston.

SALVAGE COMPANIES.
See Wrecking Companies.

SCHOOLS, NAUTICAL.
Chicago Nautical School.....Chicago.
Seattle Nautical School .....Seattle, Wash.

SEARCH LIGHTS.
Elwell-Parker Electric Co.....Cleveland.
General Electric Co.....Schenectady, N. Y.
Westinghouse Electric & Mfg. Co....Pittsburg, Pa.

SHEARS.
See Punches, Rivets, and Shears.

SHIP AND BOILER PLATES AND SHAPES.
Bourne-Fuller Co. .....Cleveland.

SHIP BUILDERS.
American Ship Building Co.....Cleveland.
Atlantic Works.....East Boston, Mass.
Bath Iron Works, Ltd.....Bath, Me.
Buffalo Dry Dock Co.....Buffalo.
Cramp, Wm. & Sons.....Philadelphia.
Craig Ship Building Co.....Toledo, O.
Chicago Ship Building Co.....Chicago.
Crescent Ship Yard Co.....Elizabethport, N. J.
Detroit Ship Building Co. .....Detroit.
Fore River Ship & Engine Co. .....Quincy, Mass.
Great Lakes Engineering Works.....Detroit.
Jenks Ship Building Co.....Port Huron, Mich.
Lockwood Mfg. Co.....East Boston, Mass.
Manitowoc Dry Dock Co. .....Manitowoc, Wis.
Marine Construction & Dry Dock Co.....
.....Mariner's Harbor, S. I., N. Y.
Maryland Steel Co.....Sparrow's Point, Md.
Milwaukee Dry Dock Co.....Milwaukee.
Moran Bros. Co.....Seattle, Wash.
Neafie & Levy Ship & Engine Building Co....Phila.
Newport News Ship Building Co Newport News, Va.
Risdon Iron Works.....San Francisco.
Roach's Ship Yard .....Chester, Pa.
Shipowners Dry Dock Co. .....Chicago.
Smith & Son, Abram .....Algonac, Mich.
United States Ship Building Co.....New York.
Warrington Iron Works.....Chicago.
Willard, Chas. P. & Co.....Chicago.

SHIP CHANDLERS.
Baker, Howard H. & Co. .....Buffalo.
Moran Bros. Co.....Seattle, Wash.
Reilly Repair & Supply Co., James....New York.
Upson-Walton Co. .....Cleveland.

SHIP LANTERNS AND LAMPS.
Helvig, H. A. J. .....New York.
Russell & Watson .....Buffalo.

SHIP TIMBER.
Martin-Barriss Co. .....Cleveland.
Moran Bros. Co.....Seattle, Wash.
Shurick, F. S. ..... New York.

SMOOTH-ON COMPOUND, FOR REPAIRS.
Smooth-On Mfg. Co. .....Jersey City, N. J.

SPARS—LARGE SIZES.
Moran Bros. Co.....Seattle, Wash.

STAYBOLTS, IRON OR STEEL, HOLLOW, OR SOLID.
Falls Hollow Staybolt Co.....Cuyahoga Falls, O.

STEAM VESSELS FOR SALE.
Elwell, Jas. W. & Co. .....New York.
Holmes, Samuel .....New York.
King, Rufus S. .....New York.
McCarthy, T. R. .....Montreal, Can.
Newman, R. L. .....New York.
Weeks, F. H. .....New York.

STEAMSHIP LINES, PASS. AND FREIGHT.
American Line .....New York.
Cleveland & Buffalo Transit Co. .....Cleveland.
Erie & Western Trans. Co. .....Buffalo.
Goodrich Trans. Co. .....Chicago.
International Mercantile Marine Co .. Philadelphia.
Pere Marquette R. R. & S. S. Line.....Milwaukee.
Red Star Line .....New York.

STEEL CASTINGS.
Seaboard Steel Casting Co. .....Chester, Pa.
Macbeth Iron Co.....Cleveland.

STEERING APPARATUS.
American Ship Building Co.....Cleveland.
Chase Machine Co.....Cleveland.
Dake Engine Co. .....Grand Haven, Mich.
Detroit Ship Building Co.....Detroit.
Electro-Dynamic Co.....Philadelphia.
Hyde Windlass Co. .....Bath, Me.
Jenks Ship Building Co.....Port Huron, Mich.
Moulton Steering Engine Co..... ... New York.
Sheriffs Mfg. Co. .....Milwaukee.

STOCKS, BONDS, SECURITIES.
Fahey & Co. .....Cleveland.

SUBMARINE DIVING APPARATUS.
Morse & Son, A. J. .....Boston.
Schrader's Son, A. .....New York.

SURVEYORS, MARINE.
Gaskin, Edward .....Buffalo.
Matteson & Drake ... .Philadelphia.
Newman, R. L. .....New York.
Wood, W. J. .....Chicago.

TESTS OF MATERIALS.
Hunt, Robert W. & Co. .....Chicago.
Pittsburg Testing Laboratory Ltd. .....Pittsburg.

TILING, INTERLOCKING RUBBER.
New York Belting & Packing Co. .....New York.

TOOLS, METAL WORKING, FOR SHIP AND ENGINE WORKS.
Allen, John F. .....New York.
Chicago Pneumatic Tool Co.....Chicago.
Watson-Stillman Co. .....New York.

TOOLS, WOOD WORKING.
Atlantic Works, Inc. .....Philadelphia.

TOWING MACHINES.
American Ship Windlass Co.....Providence, R. I.
Chase Machine Co. .....Cleveland.

TOWING COMPANIES.
Donnelly Salvage & Wrecking Co....Kingston, Ont.
Midland Towing & Wrecking Co., Ltd.Midland, Ont.

TRAPS, STEAM.
Kieley & Mueller .....New York.
Lunkenheimer Co. ..... Cincinnati.
Sturtevant Co., B F. Jamaica Plain. .....Boston.

TRUCKS.
Boston & Lockport Block Co. .....Boston.

TUBING, SEAMLESS.
Shelby Steel Tube Co. .....Pittsburg, Pa.
Waterbury Brass Co.....New York.

VALVES, STEAM SPECIALTIES, ETC.
American Steam Gauge Co. .....Boston.
Ashton Valve Co. .....Boston.
Bordo, L. J. .....Philadelphia.
Crane Co. .....Chicago.
Hayden Mfg. Co., N. L. .....Columbus, O.
Jenkins Bros. .....New York.
Kieley & Mueller .....New York.
Lunkenheimer Co. ..... Cincinnati.
Ross Valve Co. .....Troy, N. Y.

VALVES FOR WATER AND GAS.
Ross Valve Co. .....Troy, N. Y.

VARNISHES.
Detroit Varnish Co..... .... Detroit.
Detroit White Lead Works..... Detroit.
New Jersey Zinc Co.....New York.
Also Ship Chandlers.

VESSEL AND FREIGHT AGENTS.
Boland, John J. .....Buffalo.
Brown & Co.....Buffalo.
Elwell, Jas. W. & Co. .....New York.
Elphicke, C. W. & Co. .....Chicago.
Fleming & Co., P. H. .....Chicago
Hall & Root .....Buffalo.
Helm & Co., D. T.....Duluth.
Hawgood & Co., W. A. .....Cleveland.
Holmes, Samuel .....New York.
Hutchinson & Co. .....Cleveland.
King, Rufus S. .....New York.
McCarthy, T. R. .....Montreal.
Newman, R. L.....New York.
Mitchell & Co. ..... Cleveland
Richardson, W. C. .....Cleveland.
Sullivan, D. & Co. .....Chicago.
Weeks, F. H. .....New York.

VENTILATING APPARATUS FOR SHIPS.
Sturtevant, B. F. Co. .....Boston.

WIRE—BRASS AND COPPER.
Waterbury Brass Co. .....New York.

WIRE ROPE AND WIRE ROPE FITTINGS.
Baker, H. H. & Co. .....Buffalo.
DeGrauw, Aymar & Co. .....New York.
Upson-Walton Co. .....Cleveland.

WHISTLES, STEAM.
American Steam Gauge Co. .....Boston.
Ashton Valve Co. .....Boston.
Lunkenheimer Co. ..... Cincinnati.

WHITE METAL—SHEETS, RODS AND WIRE.
Waterbury Brass Co. .....New York.

WINDLASSES.
American Ship Windlass Co.....Providence, R. I.
American Ship Building Co. .....Cleveland.
Hyde Windlass Co. .....Bath, Me.
Jenks Ship Building Co. .....Port Huron, Mich.

WINCHES.
American Ship Windlass Co.....Providence, R. I.
Hyde Windlass Co. .....Bath, Me.

WOOD WORKING MACHINERY.
Atlantic Works, Inc. .....Philadelphia.

WRECKING AND SALVAGE COMPANIES.
Donnelly Salvage & Wrecking Co...Kingston, Ont.
Midland Towing & Wrecking Co., Ltd..Midland, Ont.

YACHT AND BOAT BUILDERS.
Drein, Thos. & Son .....Wilmington, Del.
Lane & DeGroot .....Long Island City, N. Y.
Marine Construction & Dry Dock Co.....New York.
Rippley Hardware Co..... ... Grafton, Ill.
Truscott Boat Mfg Co.....St. Joseph, Mich.
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Willard, Chas. P. & Co.....Chicago.

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Eastward.	Arrive from West	Depart East.
No. 18, Southwestern Lim	.....	1:50am
No. 22, Lake Shore Lim...	*2:12pm	*2:20am
No. 20, Chi & Cleve Ex....	*7:20am	.....
No. 28 N Y & Bost Ex ..	*7:40am	*8:00am
No. 40, Toledo & Buff Ac.	†10:00am	†10:40am
No. 32, Fast Mail	*11:25am	*11:30am
No. 44, Ac via Sandusky..	†1:40pm	.....
No. 46, Southwestern Ex.	....	*3:00pm
No. 116, Conneaut Accom	....	†4:30pm
No. 6, Lim Fast Mail....	*5:40pm	*5:45pm
No. 26, 20th Cent Lim. ...	*7:40pm	*7:43pm
No. 10, C. N Y & B Sp....	*7:40pm	*7:50pm
No. 16, New Eng Ex	*10:30pm	*10:35pm
No. 2, Day Express.	†9:10pm	†9 25pm
No. 126, Norwalk Accom.	†7:40am	.....

Westward.	Arrive from East.	Depart West.
No. 11, Southwestern Lim	*3:25am	....
No. 7, Day Express	....	†6:00am
No. 15, Bost & Chi Sp.....	*3:54m	*3:15am
No. 19, Lake Shore Lim..	*7:05am	*7:15 m
No. 23, Western Express.	*10:30am	*10:35am
No. 29, Southwestern Ex	‡11:10am	....
No. 33, Southwestern Ex	*12:25pm	....
No. 133, Cleve & Det Ex..	....	*12:45pm
No. 47 Accomodation	†11.0 am	†1:00pm
No. 141, Sandusky Accom.	....	†3:00pm
No. 43, Fast Mail	*4:35pm	*4:40pm
No. 127, Norwalk Accom..	...	†5:10pm
No. 37 Pacific Express...	*7:00pm	*7:20pm
No. 3, Fast Mail Lim.....	*10:50pm	*10:55pm
No. 115, Conneaut Accom	*8:10am	....

*Daily. †Except Sunday. ‡Except Monday.
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Buffalo	8 "	Cleveland	6:30 "

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CLEVELAND, O.

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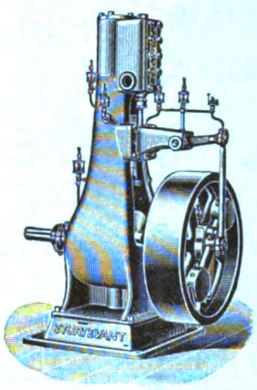

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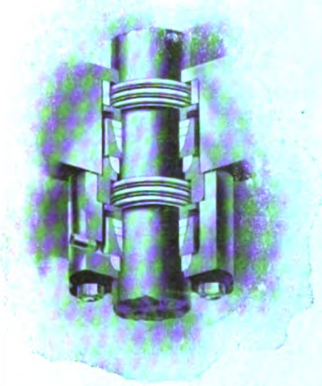

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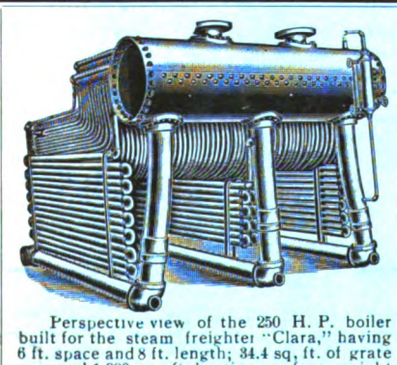

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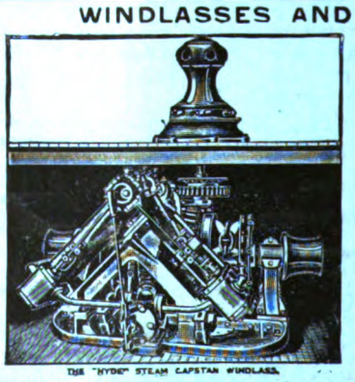

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